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AIDS TO NAVIGATION.

A POSSIBILITY THAT MORE OF THEM, MUCH NEEDED ON THE LAKES, MAY BE SECURED BEFORE THE CLOSE OF THE PRESENT SEASON— PARRY SOUND BUOYS.

Vessel men are not willing to give up the fight for more gas buoys on the lakes and for the provision of adequate means for taking care of those already in use. For this reason there is manifest no general disposition to accept the explanations vouchsafed by Commander Ackley, naval secretary of the light-house board, in his letter to Senator McMillan, which was printed in the Review a few weeks since. The war being ended, the light-house tender Mangrove has been returned to the light-house board by the navy department and is now being dismantled and refitted for service at her old station at Key West, where she will probably be on duty not later than Oct. 1. The tender Laurel, which at the commencement of the war was being made ready for transference to the lakes, but owing to the exigencies of the occasion had to be returned to her old station at Key West to replace the Mangrove, could, of course, be released and sent north upon the reappearance of the Mangrove on Oct. 1. The general belief is that if upon this being done there could be a prompt securance from the officials at Washington of the order for the storeholders and compressor with which the vessel would have to be equipped, their installation would not occupy more than two weeks, whereupon the Laurel could be sent immediately to the lakes, arriving in time to be of service in recharging the buoys this fall and to aid in taking them up at the end of the season of navigation.

Capt. George P. McKay, chairman of the committee on aids to navigation of the Lake Carriers' Association, this week received a telegram stating that Col. Anderson, chief of engineers of the Canadian department of marine and fisheries, is engaged in putting three Pintsch buoys in the main channel entrance to Parry sound. The buoys will be located at Seguin bank, Hopper island shoal and Spruce island shoal, and, as any person familiar with the locality will realize, will light the vicinity very satisfactorily.

The threat of Arthur D. Rains to discontinue the range lights on St. Joseph island, unless he receives some remuneration from vessel owners, taken in connection with the decision at the Cleveland meeting of the Lake Carriers' Association last week, to request the American commissioners to urge that the Canadian government assume charge of these and other private lights, has induced a further discussion of the subject. The matter of expense is also to be considered. The Lake Carriers' Association still pays Duff & Gatfield $2,900 annually for the maintenance of private lights in the Detroit river, and the payments to other keepers makes the total expenditures on this score quite an item to the association.

The possibility of permitting the abandonment of any of these lights is, however, out of the question. In the Sault river, for instance, the range lights located on St. Joseph island, which light the new channel at the Encampment and are operated by Arthur D. Rains, are an indispensable aid to navigation at that point. They serve as a guide through the new Encampment cut, and, as the channel at that point is all rock, it would not be safe to navigate without the aid of these ranges. The range lights at Point Aux Pines, operated by W. H. Garvey, are a valuable aid to navigation, but not so important as those operated by Rains. Leo Bernard operates two ranges at the lower end of St. Joseph island, and also range lights near Round island, that are indispensable aids to navigation through the north channel of Waiski bay. All the boats which navigate the Sault river use these ranges, as that channel is much wider and better than the channel marked by the goverment range lights leading out around Point Iroquois. Many vessel men complain that the lights operated by Bernard are not as good as are required, and that it is very hard to distinguish them from other lights, even on a clear night, particularly if other boats are navigating in the vicinity. In a recent letter on this subject, one of the best informed men on the lakes says: "There should be a gas buoy placed at the upper end of the middle ground between Round island and Point Iroquois, as it is necessary to keep to the south of Bernard's ranges until well down to Point Iroquois for fear of striking the shoal reported by the La Salle, Italia and Alva."

The Bernard ranges in the north channel at Point Iroquois are situated in Michigan, but the other Bernard ranges on St. Joseph island at the foot of Mud lake, as well as the Rains and Garvey ranges, are on the Canadian side. Some time ago officials of the Lake Carriers' Association took up the matter of these lights, and when Capt. Wilde was chairman of the light-house board a plan was mapped out whereby the judicious placing of gas buoys in American waters would have obviated the necessity of the continuance of any of the private range lights. Changes that occurred in the board later, however, prevented the accomplishment of this project. Now an effort is to be made to induce the Canadian government to take care of these lights, as it ought to do, and, failing in this, probably another appeal will be made to the United States light-house officials.

It is understood that the railway commissioners of Minnesota, who have resumed the hearing of proceedings against the two ore railways of Minnesota for a reduction in rates, will visit Chicago and Cleveland with a view to not only examining leading railway men of the country on the question of rates, but also the ore dealers who are closely associated with the mining interests of the Lake Superior region.

Iron Ore Shipments—The Freight Outlook.

If iron ore shipments during the balance of the season are simply equal to the output of 1897 in the same period, the 1898 total will exceed 14,000,000 tons, or 1,500,000 tons more than has been shipped in any previous year. Shipments in August were somewhat short of the output in August, 1897, as had been expected on account of so many vessels running up light in the ore trade during August of last year, but the total to the first of the present month nevertheless aggregates a little more than 9,000,000 tons, or about 1,300,000 tons more than on the same date a year ago. This is the gain that was made during April and May, on account of the early opening of navigation. Just now the lake freight market is in a steady, healthful condition, with little indication of a change in rates for several days to come, but there is still every prospect of higher rates for the balance of the season. The ore movement will hold out to the full capacity of mines and docks unless very high rates should result from a heavy movement of grain. Ore sales are being made right along, and the outlook for business, not only in the iron trade but in all other lines, grows more encouraging each day of late. The announcement that the Carnegie company has made arrangements with certain vessel interests to hold over until next year some ore that was to be moved from the head of Lake Superior on 60-cent contracts does not detract materially from the strength of the freight market. The contracts thus reduced in amount were based on an estimated output from one of the mines that has not reached expectations in shipments. A gradual improvement in rates is still looked for when the grain movement from Duluth and Chicago assumes the proportions that are expected on account of favorable crop reports.

Improvement in the lumber trade gives promise of general activity during the balance of the season, and there is again some talk of an organization of lumber carriers for 1899 that will succeed where the Lake Lumber Carriers' Association failed this season. There are perhaps 450 steam and sail vessels engaged in carrying lumber. Of this number it is probable that less than 80 per cent. were represented in the two organizations (Lake Michigan and lower lake associations) which were formed last spring. Owners of lumber vessels who still have hope of a successful organization being formed say that 90 per cent. of all the boats in the trade can be secured if a systematic effort is made on the basis of experience gained this season. They advocate a rigid system of fines to be imposed in all cases of failure to live up to stipulated rates or other rules that may be adopted. The question of relations with the 'longshoremen, who contributed to collapse of the association this season by failing to live up to agreements, is also one that will be given consideration, probably along a line entirely different to that of the present season. It would certainly seem that a strong organization is the only salvation for the lumber fleet. Vessels in the trade are owned mainly by individuals, men who depend upon them for a livelihood. Reduced earnings will again result in the owners of these vessels being unable to make even small expenditures or for keeping up their boats in any way. It is expected, therefore, that with the hope of some profit in the business next season, if anything is done toward maintaining rates, the problem of organization will not be so difficult when it is taken up in convention, probably at the time of the annual meeting of the Lake Carriers' Association in Detroit. Reports from all lumber manufacturing points, both on Lake Michigan and Lake Superior, are to the effect that an advance in prices of lumber is expected shortly, with indications of stocks being well cleaned up and a more active demand next spring than for a number of years past. This undoubtedly means also a movement of lumber sufficient for the balance of the present season to cause fairly remunerative rates.

A Chance for Our Ship Builders.

American ship building firms are already building warships for two foreign powers, Japan and Russia, and the indications are that ere long our activity in this line will be still further extended. A few weeks ago the Review chronicled the fact that the attache of the Norwegian navy who was sent to Santiago to watch the American operations was so impressed with the accomplishments of our navy that he had announced his intention to, upon returning home, recommend that the contracts for the new war vessels which Norway is to build be given to United States firms. That he has apparently kept his promise is evidenced by the fact that a very interesting communication has just been received from the United States consul at Christiania. He writes: "The Norwegian navy department is soliciting American bids for the construction and delivery of two armored cruisers. Bids must be delivered prior to Oct. 8, and those firms who may wish to make tenders should without delay cable the Royal Norwegian Forsnars department, navy division, for plans and specifications, which will be furnished responsible parties. If any firm should prefer to make offers, or act through this consulate, I am at their service."

The boom in new steamship companies organized to trade with the recently acquired dependencies of the United States continues apparently unabated. The latest evidence is found in the incorporation of the Baltimore & West Indies Steamship Co., with a capital of $500,000. It is announced that vessels of the new line will touch at all the principal ports of Cuba, Porto Rico and San Domingo. According to a Louisville dispatch, the Louisville & Nashville Railroad Co. is considering the advisability of establishing a line of steamers between one of the gulf ports and Cuba.

STETTIN PONTOON DOCK.

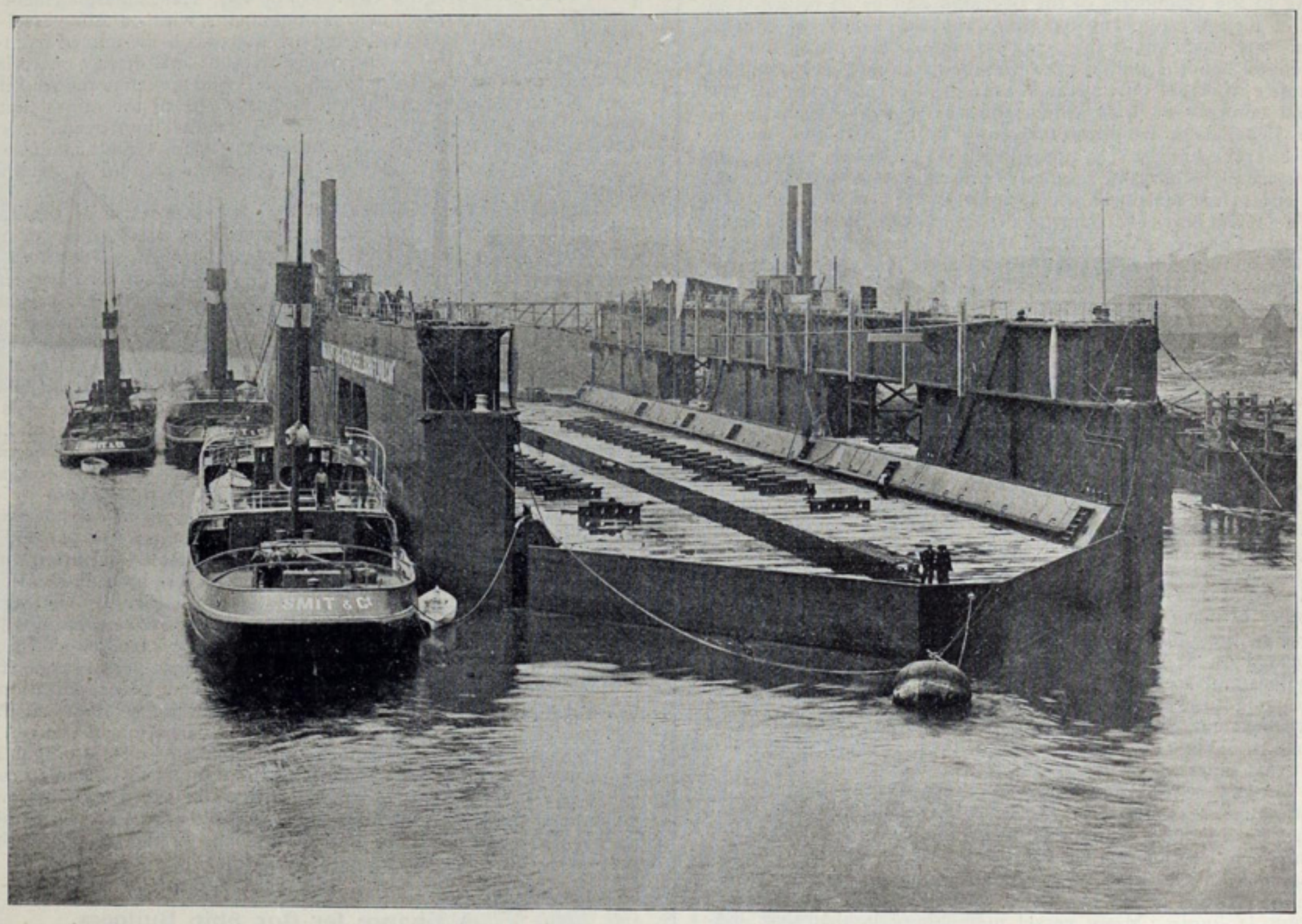
NEW PICTURES AND A DESCRIPTION OF THE LARGEST FLOATING DOCK IN THE WORLD, RECENTLY COMPLETED IN ENGLAND—CAPABLE OF LIFTING A SHIP OF 11,000 TONS DISPLACEMENT.

Through the courtesy of Messrs. Swan & Hunter, ship builders of Newcastle-on-Tyne, England, the Review is enabled to present illustrations this week from new and heretofore unpublished photos of the monster floating dock, recently completed for the Vulcan company of Stettin, Germany. One of the pictures shows the dock as it appeared when ready to be towed from the Tyne, while the other shows the appearance of the dock a month later, after having lifted the mail steamer Spree. Docks of this kind are of special interest in this country just now, on account of large appropriations made by the last congress for increased dry dock facilities for our navy. Dimensions of the Stettin dock are as follows: Length over all, 510 feet; breadth, extreme, 110 feet 9 inches; height from bottom of pontoon to top of walls, 43 feet 7 inches. The internal width is sufficient to allow vessels up to 82 feet beam to be docked, and the depth over the keel blocks is 24 feet. The maximum lifting power is about 12,000 tons. The machinery consists of two sets of compound engines of 125 horse power each, and two boilers of the marine type in each wall. Each engine is connected to two 15-inch centrifugal pumps; and the entire machinery is capable of lifting a ship of about 11,000 tons displacement in two and one-half hours. The dock as a whole is divided into thirty-eight watertight compartments, each filled or emptied by separate valves and controlled from a valve house on the top of each wall. The dock is what is known as the self-docking type, that is to say, access to all the external surfaces is possible either for painting or repairs. The dock longitudinally consists of two side walls, between which are connected three pontoons, the center one being 240 feet long and the two end pontoons 135 feet.

Steam winches capable of exerting a pull of 3 tons are provided. The bilge blocks, of wedge pattern, are worked by means of chains from the upper deck of the wall. The dock is provided at each end with a pair of flying gangways or swing bridges, which afford, when closed, access from one tower to the other. These gangways have been constructed with sufficient strength to be used as cranes, and will be found to be very useful for dealing with propellers, stern posts, or such heavy pieces. The pumping and controlling machinery of the pontoon consists of eight horizontal centrifugal circulating pumps, four placed in each wall of the pontoon. These pumps have large vertical shafts, geared by means of bevelled wheels, and horizontal shafts to engines which are placed on a deck near the top of the pontoon walls. These engines, which are four in number, each drive two pumps, and are of a high class, fast running, compound type, fitted with fly wheel governors, and all the latest improvements. Each engine is driven by a large horizontal multitubular marine boiler, which is placed in close proximity to the engines. The main line of suction pipes is placed at the bottom of the pontoon walls, and runs the entire length of same, and branches are carried through from the walls into the pontoon itself through flexible joints. The valves for regulating the filling and emptying of the dock, of which there is, of course, a large number, due to the great subdivision of the pontoon, are all manipulated by means of rods and levers from central houses placed one on each wall. From this position also the engines for driving the pumps can be started or stopped at the will of the engineer in charge. The whole of the controlling gear is so arranged that two men, one on each wall, can control all of the pumping gear of the entire structure.

The Stettin dock surpasses in size considerably the Havana dock, which was illustrated in the Review some months ago, and which was the subject of much discussion at the time of its construction. The Havana dock, which was built to the order of the Spanish colonial office for use at the island of Cuba, is 450 feet in length, 82 feet wide, 27 feet 6 inches depth over sill and 42 feet 6 inches draught. It was the construction of the Havana dock, however, that secured for the company the order for the one just completed. All records were broken by the rapidity with which the Stettin dock was built. The Havana dock had been constructed in seven months, but despite the fact that it was larger, the Stettin structure was completed in even less time. The contract was signed Oct. 23, 1897; the first plates were delivered Nov. 1 and laid Nov. 13; the dock was launched May 21, 1898, and left the Tyne June 9, arriving at Stettin June 18, and went through the official trials June 21. The dock was towed to its destination by three large tugs. On several days severe weather was encountered with heavy seas on the port bow, which retarded progress considerably. The dock, however, weathered the storm in a thoroughly satisfactory manner and was entirely uninjured, although the seas repeatedly broke over the pontoon deck. The dock was towed by double bridles, one to each tug, which were made fast to shackles and bollards situated on the lower ends of the walls, and to the bight of which the hemp towing hawsers were attached.

This huge structure was built primarily for a special purpose. The Vulcan company, which, by the way, built the Kaiser Wilhelm der Grosse, the fastest of the transatlantic liners, has the contract for the lengthening, rebuilding and re-engining of two of the steamers of the North German Lloyd line, the stipulation being that the work be completed in time for them to go into commission next season. A hurried order for the dock, telegraphed to Swan & Hunter within three weeks from the time prices were first quoted, resulted, therefore, from a desire to insure the delivery of the North German Lloyd vessels on time.



THE STETTIN FLOATING DRY DOCK—LARGEST IN THE WORLD—READY TO BE TOWED FROM THE TYNE.

The firm of Gibbs & Joys, composed of Messrs. Albert Gibbs and Carl C. Joys, has succeeded to the vessel brokerage and insurance business conducted by the firm of R. P. Fitzgerald & Co. of Milwaukee, recently dissolved. The new firm will, after Oct. 1, occupy the suite of offices in the chamber of commerce building formerly occupied by Fitzgerald & Co., and will give special attention to all business connected with the marine interests of the great lakes.

A fine new chart of the Straits of Mackinaw has just been issued by the hydrographic office and will doubtless be highly appreciated, as no very satisfactory chart of these waters has heretofore been issued. Copies of the new chart, which is on a very large scale, may be obtaineu of the Marine Review at $1 each.

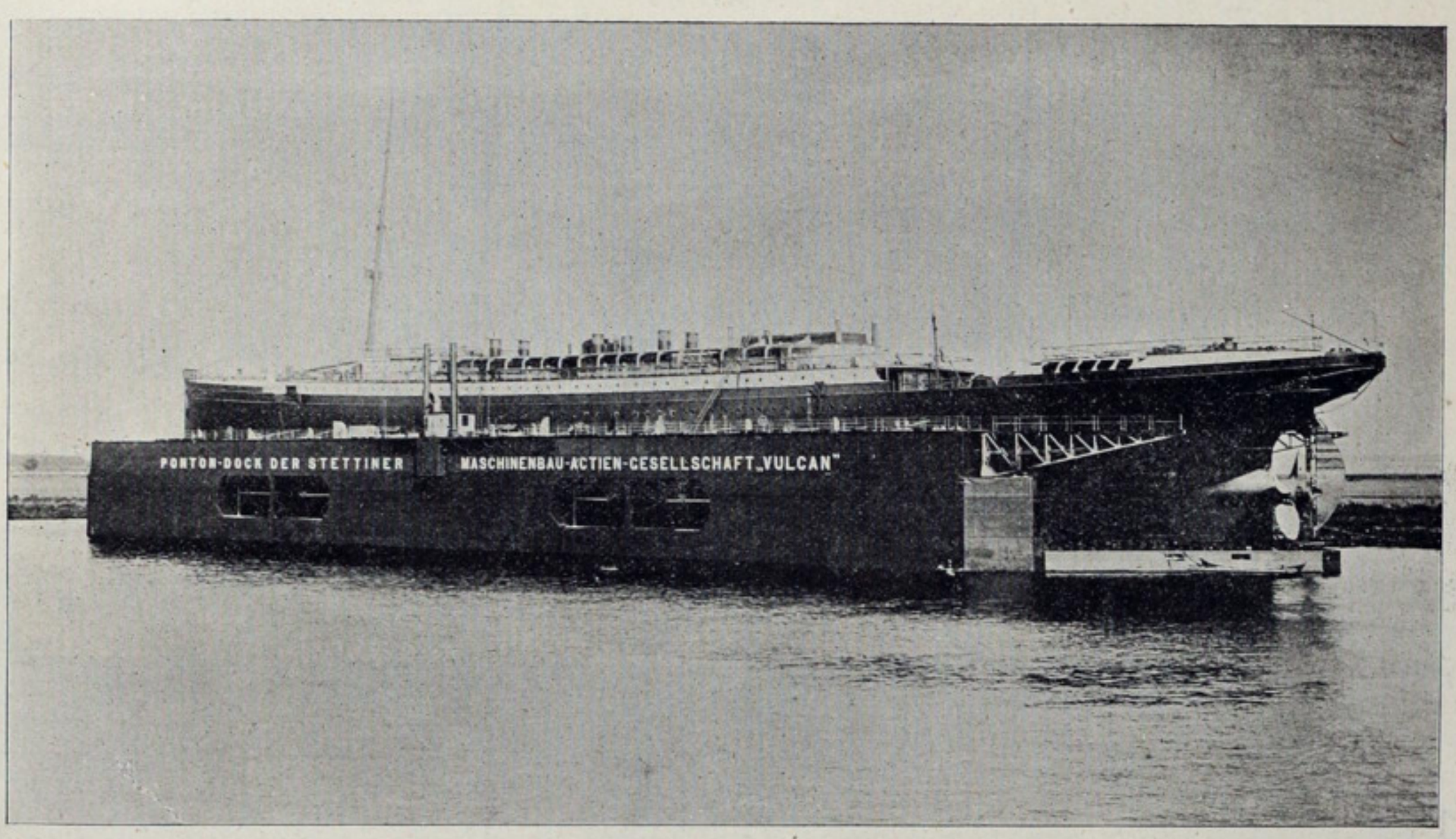
VESSEL FOR ARMY ENGINEER SERVICE.

A STAUNCH STEEL TUG TO BE USED ON HARBOR WORKS AND FOR SURVEYS AT PUGET SOUND AND GRAY'S HARBOR.

Capt. Harry Taylor, United States engineer in charge of government work at Seattle and vicinity, this week opened bids for the construction of a steel hull tugboat for use on Puget sound. The plans and specifications for the vessel were prepared by E. L. McAllaster, naval architect, formerly with the Detroit Dry Dock Co. The vessel is designed for general use on Puget sound and in Gray's harbor, which will regularly include towing on the sound, the transportation of inspection officers from place to place, and the surveying work at Gray's harbor. As the trip from Puget sound to Gray's harbor requires an outside passage around Cape Flattery, which is not noted as a particularly smooth place, a good sea boat is required, but at the same time the surveying duty requires a limited draught. The interior arrangement of the vessel will, according to Capt. Taylor, be rather unusual. The tug is so designed as to permit of passage from any part forward or aft to any other part without going on deck. This is particularly desirable in the waters where the tug is to see service, as during the winter months there is encountered much stormy and rainy weather. Such an arrangement of the vessel will involve the loss of a small amount of room, which might otherwise be used to advantage, but as there was no pressing need for additional room, the convenience of the arrangement adopted was considered by Capt. Taylor and the other engineers who gave attention to the matter, to considerably more than offset the lost room.

Dimensions of the new tug will be as follows: Length of keel, 85 feet; length on deck, 94 feet; breadth, 19 feet 6 inches; depth, 11 feet; draught of water, with 20 tons of coal, 7 feet. The hull will be of open hearth steel of a tensile strength of from 52,000 to 60,000 pounds per square inch. There will be three watertight bulkheads athwartship, and one not watertight. Fore-and-aft coal bunker bulkheads will extend from the forward boiler room bulkhead. All woodwork on the hull will be of Puget sound white fir of the best quality. Hard wood floors in narrow widths, highly polished, will be worked over the deck in the after staterooms, saloon, ward room and chart room. The ceiling in the forward quarters below deck will be of cedar, while the ceiling in the after cabin will be paneled.

The engine will be of the vertical, inverted fore-and-aft compound type, with cylinders 15 and 30 inches by 20-inch stroke. There will be a piston valve for the high pressure cylinder, with a double ported slide for the low pressure cylinder and Stevenson double bar links. There will be a built crankshaft, and no pumps will be attached to the engine except a bilge pump, which will be worked from a pin in the front end of the shaft. The boilers will be 10½ feet in diameter by 10 feet in length, with a working pressure of 125 pounds. They will contain at least 1,000 square feet of effective heating surface, using 3-inch tubes with two Morison furnaces of 40 inches inside diameter. The condenser will have at least 500 square feet of cooling surface. Feed, fire, air and circulating pumps will be provided. There will be three water closets and a bath-room, and steam radiators will be fitted in the chart room, in the living quarters on main deck and in the lower cabin aft. The fresh water tanks provided will have a total capacity of 2,000 gallons. In the ship's equipment will be an electric light plant and a system of electric bells, as well as steam capstan, windlass, etc. The trial trip will consist of two hours' continuous steaming, during which the revolutions of the engine must not average less than 140 per minute, and the power must not average less than 250 horse power with a minimum of 200 horse power, indicated. The vessel is to cost in the neighborhood of $30,000, and the contract calls for the delivery within four months. A penalty of $30 per day will be imposed should the time of completion exceed that specified, but on the other hand bidders who specified a shorter time than four months were to be allowed sums computed at the rate of $30 per day for time so saved.



THE STETTIN PONTOON DOCK AFTER LIFTING THE ROYAL MAIL STEAMER SPREE.

Riveting by Electricity.

For the past two years Mr. F. von Kodolitsch, a member of the Institution of Naval Architects, has been experimenting in the construction of electric riveting machines, and, according to statements made in a paper read at a recent meeting of that society in London, he has been in some degree successful. He asserted that for a period covering several weeks his machine, intended for ship building purposes, had closed an average of 1,200 rivets per day of ten hours, requiring for its operation only the services of three men and a boy. The mechanism of the electric riveter is very simple. To the large jaw are attached two platforms at right angles, so that the riveter may be used horizontally or vertically. One heavy disk is always rotating by electricity, whether the riveter is closing rivets or not. This disk can become, at the same time, an electro-magnetic coupling, so that when the current is passing this coupling a second disk, keyed on to a screw spindle, may be at once firmly attached to the revolving disk, and thus the friction of the screw spindle can be regulated according to the operator's wish. The screw spindle moves a large nut at the end of the knuckle joint, which raises and lowers the die for making the rivet head. Between the two disks a conical friction roller can be inserted. By pressing in this roller, the motion of the screw spindle can be reversed, and the nut of the knuckle joint returned to its original position, in order to be ready for a new stroke. The pressure on the die must be regulated in proportion to the diameter of the rivet, and this is done by producing more or less friction between the two disks, which difference in friction is obtained by more or less current being admitted to the electro-magnetic coupling. The type of the riveting machine now manufactured is made chiefly for ship building purposes, and closes rivets up to 1⅜ inches in diameter. When so many hot rivets are required in a short time, the question of heating the rivets becomes very important.

New Contracts in the Ship Yards.

It is announced that the Star-Cole Line of Detroit will this fall let the contract for a new steamer, to be ready to go into commission next summer.

The Hudson line of Morgantown packets, running from Pittsburg, is now controlled by a stock company which contemplates the construction of a new side wheel steamer.

The Moran Towing Co. has decided to build another steel tug, the dimensions of which will be 90 feet length, 22 feet beam and 9½ feet depth. The contract goes to Peter Magee of Athens, N. Y.

The Puget Sound Tugboat Co. will build one of the largest steel tugs in the United States. She will be 150 feet over all, 27 feet beam and 16 feet depth of hold, with 1,500 horse power and a speed of 13 knots.

Messrs. N. C. Peterson and J. H. Thornton have launched at Seattle, Wash., the twin-screw steamer building for the Seattle and La Connor route. She is 122 feet long, 26 feet beam and 6½ feet depth of hold.

THE MARIETTA'S RECORD.

REMARKABLE SHOWING MADE BY A GUNBOAT FITTED WITH WATER TUBE BOILERS—A TRIP 'ROUND THE HORN WITH THE BATTLESHIP OREGON.

Much has been written regarding the remarkable trip of the battleship Oregon from San Francisco around Cape Horn to Key West, but comparatively little has been said of the cruise of the gunboat Marietta, which covered the same route, the greater part of it in the company of the Oregon, and for which the trip was, in some respects ,a greater achievement than it was for the big battleship. The Marietta, which, by the way, was also built by the Union Iron Works, San Francisco, the builders of the Oregon, was during her trip from San Francisco to Key West in company with the battleship as far as Rio de Janeiro. In order to keep up with the Orgeon the Marietta was compelled to maintain a speed of 13 knots for the entire distance of 11,000 miles. As the Marietta was built for only 12 knots, the maintenance on a long voyage of a speed one knot in excess of contract requirements has caused much favorable comment regarding her boiler equipment. These latter are of the water tube type, manufactured by the Babcock & Wilcox Co., and were selected by the contractors for the gunboats Marietta and Annapolis, which selection was approved by Engineer-in-Chief Melville. Not once during the Marietta's long voyage was it found necessary to slow up on account of, or make any repairs whatever to, the boilers. As might be expected after such a voyage, the furnace fronts, which were of tile, needed relining, but this was not absolutely a requisite, and it was the only order for material received by the boiler builders.

Arriving at Key West, Chief Engineer Chambers reported to the navy department that he was ready to go on the blockade at once, and after recoaling the Marietta took her place with the squadron and has since been in active service. It is claimed by some engineers that water tube boilers will not stand sea duty, but it must finally be admitted by the most skeptical that here is a type that has been weighed in the balance and not found wanting when steam was required. Just prior to her trip around the horn the Marietta was run on several trials to determine her maximum radius of steaming, and economy. We quote from the official report to the navy department by W. H. Chambers, chief engineer of the ship:

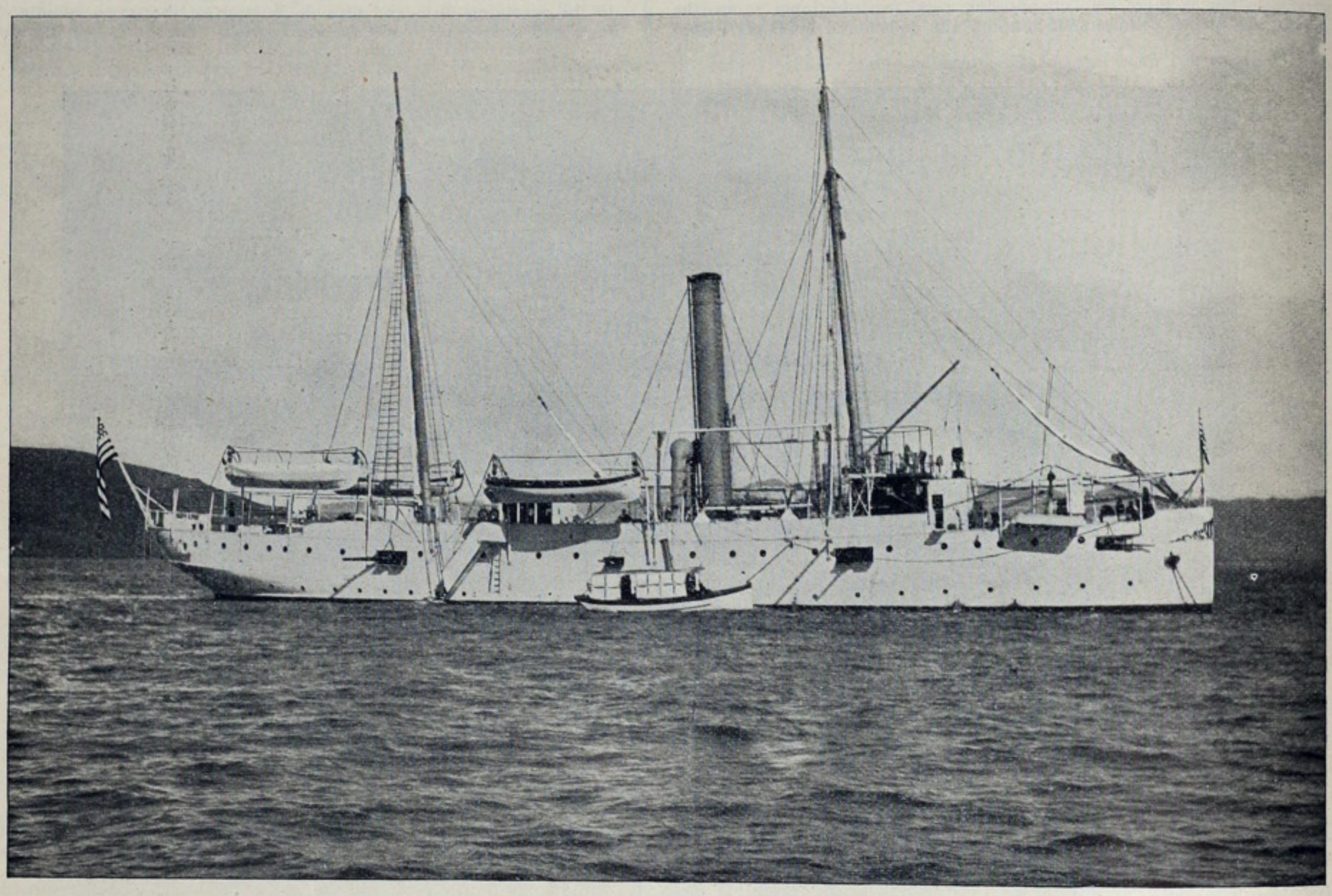
"Runs were made for periods of forty-eight hours each, the engine revolutions being maintained at as near a constant rate as possible and a careful account kept of the distance run and the amount of coal burned during these times. Three different rates of revolutions of engine were taken, giving speeds of 10½, 9½ and 8½ knots, respectively. At the 8½-knot speed the wonderfully small coal consumption of 6½ tons a day was obtained, or 1.52 pounds per indicated horse power. In other words, the Marietta steamed 264 miles a day on only 6½ tons of coal, or could go more than 7,500 miles on her coal supply."

When it is remembered that this coal expenditure represents not only the steaming but the electric lighting, ventilating, cooking and heating of the ship, it can be seen how very economical this is for a vessel of 1,000 tons displacement.

The Marietta is a composite gunboat, 174 feet in length on the water line, 34 feet breadth of beam, 12 feet draught and of 1,000 tons displacement. The machinery installation, in which, of course, interest now centers, consists of twin-screw vertical triple-expansion engines, with cylinders 12, 18 and 28 inches in diameter by 18-inch stroke. The Babcock & Wilcox boilers are 11 feet 6 inches in length and 9 feet 6 inches in width, with a height over all of 11 feet. The grate surface aggregates 94 square feet and the total heating surface 3,620 square feet. There are fifty-seven 4-inch and 260 2-inch tubes in boiler and sixty-four 2-inch tubes in heater. The boiler tubes are 7 feet 6 inches in length, while the tubes in the heater have a length of 6 feet 8 inches. The total weight of boilers, ash pans, and all fittings (dry) is 94,016 pounds, while the aggregate weight (with water) of boiler, ash pans and all fittings is 112,016 pounds.

As shown by the illustrations, all tubes are straight and are expanded at their ends into wrought steel sinuous manifolds or headers. Openings are provided in the headers opposite the ends of each tube, through which the tube may be examined internally and cleaned or removals made. The three rows of tubes above the grates are 4 inches in diameter and of No. 6 B. W. G. thickness. Above these the tubes are all 2 inches in diameter and of No. 8 B. W. G. thickness. Situated in the uptake is a feed water heater containing 233 square feet of heating surface, while the evaporating surface in each boiler is 1,577 square feet, making a total heating surface of 1,810 square feet. The triangular space formed by the inclined 2-inch tubes and the drum act as a combustion chamber, any gases that may have escaped in the furnace unconsumed being here ignited. With this entire arrangement the combustion is found to be quite perfect, and this is borne out by the high economy obtained. Large doors are provided in the front and rear casing that thorough access may be had to all tube ends. The ease and length of time required to remove and replace a tube is given in a report submitted to the engineer-in-chief of the navy by a board of engineers appointed to examine into the merits of the Babcock & Wilcox marine boiler, which was stated as follows: "After the test was completed the fires were hauled and the water blown out. Two workmen with two helpers then split both ends of a lower tube, drew it out, put in a new one, expanded it and replaced the caps ready for water in 22½ minutes."

Boilers of the type described have also just been installed in United States cruisers Chicago and Atlanta, while the United States monitors Manhattan, Mahopac and Canonicus were reboilered and steamed, the first two named in five weeks and the last in seven weeks from date of receiving order. This speed of manufacture and erection stands without parallel in the records of steam boiler building. Babcock & Wilcox boilers are now being installed in H. M. S. Shelldrake and in the Norwegian corvette Ellida.



UNITED STATES GUNBOAT MARIETTA, WHICH ACCOMPANIED THE BATTLESHIP OREGON 'ROUND THE HORN.

The White Star liner Oceanic, largest ship in the world, now under construction at the yards of Harland & Wolff, Belfast, Ireland, will, in all probability, be launched in January.

CANADIAN SAULT.

A MUCH NEEDED IMPROVEMENT TO BE MADE THERE IN THE NEAR FUTURE—DIFFERENCE IN TREATMENT OF VESSELMEN AT THE TWO CANALS.

The superintendent of the Canadian Sault canal, in conversation with a Cleveland vessel owner, a few days ago, stated that there will be no further delay in preparations for the removal of the bridge abutment, which has, ever since the construction of the canal, been a matter of considerable inconvenience to vessel men. It was the intention to have had this matter remedied last year, but for some reason a postponement was made. Under the present arrangement it is possible for only one vessel to pass the railroad bridge at a time. Last year an up-bound and down-bound vessel attempted to pass at this point, with the result that they became so tightly wedged that traffic was completely blocked for over six hours and the boats were only released after the fenders had been sawed. Under the plan now projected the bridge will swing in such a manner as to make available the full width of the canal.

Officials at the Canadian Sault say they still hear compliments from masters, who declare that they receive better treatment from them than is to be had at the American canal. One of the principal matters cited is that of the taking of lines. It is claimed that two men are always to be found at the head of the Canadian canal, and that even if a master offers to send men ashore they assure him that it is needless and carry the lines the entire distance, assisting in the checking of a vessel as often as her master may desire. Another representation made is that the Canadian officials are much more accommodating to vessels that tie up for the night, allowing them to tie up in the canal, whereas on the American side it is often necessary to engage a tug to be taken to suitable anchorage when little effort is made to keep clear space at the government dock.

Capt. John McKeighan of the schooner J. J. Barlum, who has been using both canals ever since they were opened, has never been a complainant regarding any treatment he has received, but in answer to queries, a few days ago, admitted that he preferred the Canadian Sault by reason of the greater number of courtesies shown. One of the points made by Capt. McKeighan was that whereas in the Canadian canal tows are allowed to have any length of line, 600 feet or more, if desired, they are restricted to a few feet in the American canal. The result of this restriction is to necessitate constant checking in coming down the American canal, and moreover, the schooner following so close is almost certain to be constantly caught in the current from the propeller of her steamer and dragged hither and thither in a manner making it extremely difficult to steer. A fault found with the Canadian canal is the narrowness of the lock, which is only 60 feet. It was a surprise to most persons at the time the canal was built that the lock was not made 80 feet, and the inconvenience in consequence has been constantly growing more serious. It is practically impossible to remedy the matter now, however, inasmuch as the canal officials state that to widen the lock would be almost equivalent to constructing a new one as far as cost is concerned.

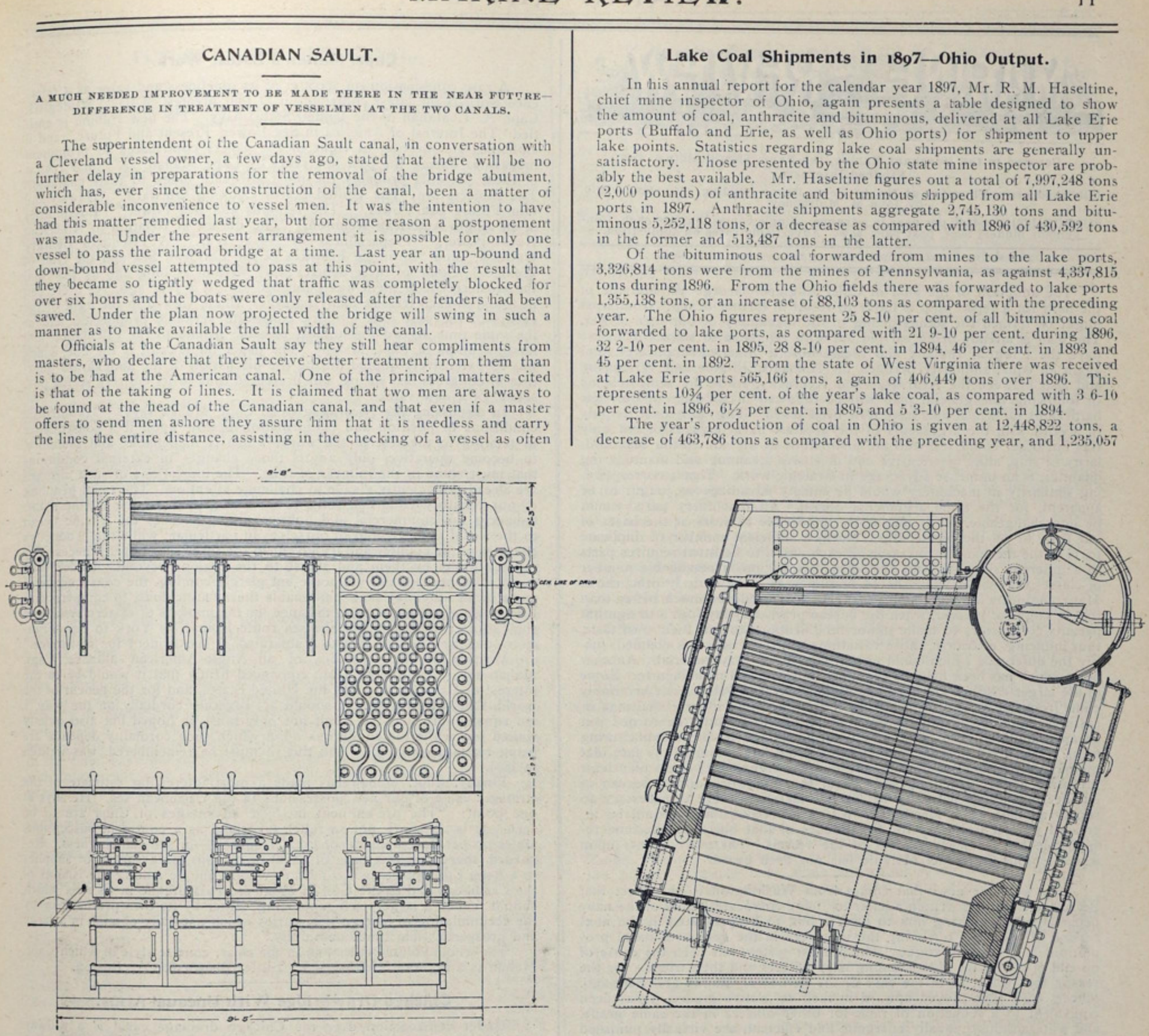
The war seems to have had a rather depressing effect upon our, at best, none to healthy merchant marine. The portion of our imports carried in American vessels decreased from 15.7 per cent. of the whole in July, 1897, to 7.3 per cent. in July of this year. In July a year ago 8.5 per cent. of the aggregate of exports was sent abroad in American bottoms, while for July of this year the percentage is only 5.9.

Lake Coal Shipments in 1897—Ohio Output.

In his annual report for the calendar year 1897, Mr. R. M. Haseltine, chief mine inspector of Ohio, again presents a table designed to show the amount of coal, anthracite and bituminous, delivered at all Lake Erie ports (Buffalo and Erie, as well as Ohio ports) for shipment to upper lake points. Statistics regarding lake coal shipments are generally unsatisfactory. Those presented by the Ohio state mine inspector are probably the best available. Mr. Haseltine figures out a total of 7,997,248 tons (2,000 pounds) of anthracite and bituminous shipped from all Lake Erie ports in 1897. Anthracite shipments aggregate 2,745,130 tons and bituminous 5,252,118 tons, or a decrease as compared with 1896 of 430,592 tons in the former and 513,487 tons in the latter.

Of the bituminous coal forwarded from mines to the lake ports, 3,326,814 tons were from the mines of Pennsylvania, as against 4,337,815 tons during 1896. From the Ohio fields there was forwarded to lake ports 1,355,138 tons, or an increase of 88,103 tons as compared with the preceding year. The Ohio figures represent 25 8-10 per cent. of all bituminous coal forwarded to lake ports, as compared with 21 9-10 per cent. during 1896, 32 2-10 per cent. in 1895, 28 8-10 per cent. in 1894, 46 per cent. in 1893 and 45 per cent. in 1892. From the state of West Virginia there was received at Lake Erie ports 565,166 tons, a gain of 406,449 tons over 1896. This represents 10¾ per cent. of the year's lake coal, as compared with 3 6-10 per cent. in 1896, 6½ per cent. in 1895 and 5 3-10 per cent. in 1894.

The year's production of coal in Ohio is given at 12,448,822 tons, a decrease of 463,786 tons as compared with the preceding year, and 1,235,057 tons when compared with 1895. Of the year's output, 4,106,124 tons were mined by machinery, which is a gain of 737,775 tons as compared with 1896. There are 1,228 mines in the state, 413 of which employed more than ten men; 1,126 mines were in operation during the year, thirty-seven of which are regarded as large mines. The number of active mines returned is thirty in excess of the number reported during any year of which the department has a record. The average time worked is given at 150½ days, the same as during the year of 1896. The number of miners employed was 22,131, a loss of fourteen when compared with the previous year. There were 6,654 day hands, a gain of 353 as compared with 1896. During the year eighty-nine new mines were opened, 102 remained suspended and ninety-seven were either exhausted or abandoned.



BABCOCK & WILCOX WATER TUBE BOILERS IN THE UNITED STATES GUNBOAT MARIETTA.

A communication elsewhere in this issue from Capt. Thomas Wilson of Cleveland would seem to indicate that there is sufficient cause for the complaint that has been heard for a long time past about poor accommodations for the increasing passenger traffic on the St. Lawrence below Quebec. The outcome of these complaints will be the establishment eventually of a line with American connections for lower St. Lawrence tourist service that will give the accommodations which passenger traffic in that beautiful country demands. In the senseless rivalry that exists between the American line of steamers and the Richelieu & Ontario company passengers desiring to make the trip down the St. Lawrence below Quebec are subjected to all sorts of inconveniences. Recently a party of Clevelanders who took passage on the American line to Quebec, intending to take one of the Canadian boats at that point, saw the lines of the Canadian steamer that was bound down the river thrown off just as they were approaching the dock. It was claimed that this act was intentional, and that it is done repeatedly at Quebec, as the Canadian company has a monopoly of the business below Quebec and seems to have no regard for the accommodation of passengers from the competing lines further up the river.

MARINE REVIEW

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The adoption of the plan of Chief Engineer George W. Melville of the navy for a repair ship is likely to result in further benefits from what might be termed the standardizing of the machinery of our men-of-war. The plan is already being carried out with reference to ships. Thus we have the Oregon, Indiana and Massachusetts practical duplicates, and again an equal similarity between the Alabama, Illinois and Wisconsin, and also between the Kearsarge and Kentucky, while the same scheme of following one general plan will be followed in the case of our new battleships for which bids have now been asked. This, moreover, is only in accord with the arguments of the greatest naval experts of not only this but other countries, who are unanimous in the contention that similarity of ship, alike in offensive and defensive steaming and manœuvring qualities, is an immense advantage in strategic work. That a corresponding similarity in machinery would be equally advantageous, ought to be apparent, for the same arguments obtain. All machinery parts would be interchangeable. It is manifestly impossible to store at the bases of our fleet, or on the repair ship Vulcan, a sufficient number of duplicate parts of the mechanism of vessels, if each vessel to be fitted requires parts of a different size, but with the ships divided into a reasonable number of classes the matter would be so simplified as to be entirely practicable. Many engineers are contending that this plan would be much better than that in vogue at present, when the bureau practically lays out a design but permits contractors to make minor modifications to suit their own taste, thus inducing, of course, those variations which do not, it is claimed, justify the difference which could not, of course, be very material. Another point which has been made is economy in repair and manufacture. Some of the larger castings and forgings for our naval vessels almost invariably come from one or two firms. Thus it is argued that if these shaftings or castings could be manufactured in duplicate they could be turned out cheaper and that, too, without any disadvantage to the manufacturing firms. The disadvantages, on the other hand, are found in the fact that the navy department would not, presumably, secure the benefit of private inventive genius or enterprise. Then, too, the work of the bureau of engineering would naturally be heavily increased were it necessary to supply all designs of machinery, just as its responsibility would be increased were it necessary for the officials of that bureau to become responsible for the performances of the vessels. These are points upon which Engineer-in-Chief Melville has not been heard.

It is welcome news that comes from Washington to the effect that Secretary Long has written a letter to Judge Advocate Lemly of the navy department authorizing him to draft a bill, to be presented at the next session of congress, obviating the injustices in the system of naval promotions at present in vogue. The present system has been the cause of no end of complaint of late among navy officers and their friends, for the reason that when, as in the case of the heroes of Manila and Santiago, officers have been moved upward in their respective grades, it has been equivalent to a reduction of rank for other officers in the same grade, and who, although equally energetic and efficient, are virtually punished because they did not happen to have the opportunity to participate in engagements where the display of exceptional bravery was possible. A striking case in point was that of Capt. Charles E. Clark of the battleship Oregon, who, upon the arrival of his ship after her famous run from the Pacific, was made the hero of the hour and thanked by the president and the navy department, but at the same time received the notification that he had been reduced in rank three numbers and virtually fined $1,000 in consequence of the promotion of the Manila heroes over his head. That even the officers favored with promotion recognize the injustice of the system is proven by the action of Commodore Philip, formerly of the Texas, who protested to the secretary of the navy against his own promotion, because of his belief that it was made at the expense of his comrades and friends whom he believed had performed their duty as bravely and ably as he. Many remedial plans, including a system of medal awards, have been suggested, but Secretary Long seems to rather favor the establishment of a roll of honor.

The Spanish bark Carlos de Roses, which was captured while attempting to run the Cuban blockade, taken to Key West, sold as a prize and finally renamed the Maryland, was the first vessel flying the stars and stripes to enter Havana harbor since the commencement of the war.

Another international maritime conference will be held this month. It will be at Antwerp, and judging from the arranged program, will deal chiefly with the collisions and the liability of vessel owners in connection therewith.

Further evidence of the growth of American shipping interests is found in the announcement that so far this year no less than ten steamship lines have been established between this country and Asia, Australia and Africa.

Lieut. Commander Ira Harris of the naval repair ship Vulcan reports that up to date the force of his ship has supplied thirty-one vessels with engineers' stores and has repaired the machinery of twenty-six vessels.

Capt. Mahan's Latest Work.

A rare combination on account of its timeliness and value as a reference work is the latest contribution of that greatest of naval strategists, Capt. A. T. Mahan of the United States navy. The new volume is entitled "The Interest of America in Sea Power, Present and Future," and it embodies a collection of eight of the papers contributed to prominent magazines during the past few years by Capt. Mahan. A titular review of these presents probably the most adequate index to their character. The subjects are "The United States Looking Outward," "Hawaii and Our Future Sea Power," "The Isthmus and Sea Power," "Possibilities of an Anglo-American Reunion," "The Future in Relation to American Naval Power," "Preparedness for Naval War," "A Twentieth Century Outlook," and "Strategic Features of the Caribean Sea and the Gulf of Mexico." Some of these articles were written as long ago as 1890 and the most recent of them was published almost a year ago, yet there can be found in each treatise many passages which, viewed in the light of the events of the past four months, constitute veritable prophecies, and at the same time accord the highest possible tribute to the calculation and farsightedness of Capt. Mahan. The paper on Hawaii is the one which was so extensively quoted during the discussion of the annexation question in congress last spring, but presented thus in its entirety seems possessed of a new value.

In discussing the Nicaragua canal Capt. Mahan says: "Its intrinsic conditions of position and conformation bestow upon it a consequence in relation to the rest of the world which is inalienable, and therefore, to become operative, only awaits those changes in external conditions that must come in the fullness of time. The indications of such changes are already sufficiently visible to challenge attention. The rapid peopling of our territory entails at least two. The growth of the Pacific states enhances the commercial and political importance of the Pacific ocean to the world at large, and to ourselves in particular; while the productive energies of the country and its advent to the three seas impel it necessarily to seek outlet by them and access to the regions beyond. Under such conditions, perhaps not yet come but plainly coming, the consequence of an artificial waterway that shall enable the Atlantic coast to compete with Europe on equal terms as to distance for the markets of eastern Asia, and shall shorten by two-thirds the sea route from New York to San Francisco, and by one-half that to Valparaiso, is too evident for insistence."

Writing of the possibility of an Anglo-American alliance, Capt. Mahan says: "Although I am convinced firmly that it would be to the interest of Great Britain and the United States, and for the benefit of the world, that the two nations should act together cordially on the seas, I am equally sure that the result not only must be hoped but also quietly waited for, while the conditions upon which such cordiality depends are being realized by men." And this, it must be remembered, was written in 1894.

Finally, Capt. Mahan has made a most interesting estimate of the strategic value of our new possessions in the Caribbean sea. He says at one point: "The pre-eminent intrinsic advantages of Cuba are to be seen. It is, in short, not so much an island as a continent susceptible, under proper development, of great resources—of self-sufficingness. Regarded, therefore, as a base of naval operations, as a source of supplies to a fleet, Cuba presents a condition wholly unique among the islands of the Caribbean and of the Gulf of Mexico. It is unique in its size, which should render it largely self-supporting, either by its own products or by the accumulation of foreign necessaries which naturally obtains in a large and prosperous maritime community."

The whole volume is written in the clear, concise style of which Capt. Mahan is a master. Published by Little, Brown & Co., Boston.

Chicago Drawbridge With Unequal Arms.

Under construction over the Chicago drainage canal is a railway swing bridge of peculiar design. The novelty is found chiefly in the fact that the bridge has its pivot 242 feet from one end and 121 feet from the other. The width of the canal is 162 feet, and as it was not desired to obstruct this by a pivot pier, the pier and turntable are placed at one side of the canal. In order to reduce the length of the structure it was decided to make the shore arm the shorter, and to counterbalance the weight of the longer arm by about 400 tons of cast iron placed under the floor beams of the shorter arm. There are two trusses, 30 feet 6 inches apart. They are 67 feet high over the turntable, 30 feet high at the end of the longer arm, and 43 feet high at the end of the shorter arm. The center panel, or turntable tower, is 30 feet 6 inches long, the long arm having ten panels and the short arm five panels. The entire length of the bridge will be 393 feet 6 inches. The turntable drum is 47 feet 5 inches diameter, and rests on ninety conical wheels of cast steel, 18 inches diameter and 11 inches wide. These run on a cast steel track bolted to the top of the pier. Inside the drum and concentric with it is a ring formed of four quadrant girders, and also inside it are four straight girders forming chords to arcs of the drum. At the center of each of these four arcs is a steel bolster resting on the arc and chord—or drum and straight girder—and upon this bolster rests one of the posts or columns of the main tower of the bridge. By this arrangement the load upon each post is carried by three points on the drum. The composition of the drum and girders is lighter for the short arm than for the longer arm. The end bearing wedges are operated by a rod attached to a cog wheel gearing with a rack on the end of a horizontal piston rod, the piston of which is operated by compressed air at 70 pounds pressure.

An addition has been made to the United States navy in the form of the Spanish gunboat Sandoval, which was scuttled by the Spaniards at her anchorage off Guantanamo and afterwards raised under the direction of Capt. McCalla of the Marblehead.

The navy department is about to begin at Mare Island (California) the erection of one of the largest and most complete hospitals in the country. The building will cost about $100,000.

FUTURE OF THE ERIE CANAL.

SOME OF THE PROBLEMS THAT ARE JUST AT PRESENT CONFRONTING THE SEVERAL INTERESTS CONNECTED WITH TRANSPORTATION ON THE NEW YORK WATERWAY.

Buffalo, Sept. 7.—The probable nature of the ultimate decision regarding improvements on the Erie canal is just now a matter of considerable concern to everybody interested in transportation affairs on tnat waterway. Not only are the boatmen desirous of some information as to the probability of the completion of the improvements already undertaken, but there seems to be a dearth of information as to what will be the minimum size of lock when the alterations are completed. It will readily be appreciated that under these conditions the boatmen do not feel justified in building new boats, and yet on the other hand the demands of the traffic are such as to make some additions to the present fleet almost imperative. To what extent these circumstances have induced stagnation is demonstrated by the fact that there is at present but one canalboat under construction. The period of usefulness of a canalboat is short at best, due in a considerable measure to the fact that insurance companies will take them as risks only when they are in first-class condition, and it will thus be seen that if construction is suspended for any considerable period the size of the fleets is seriously impaired. For instance, at present there are in actual commission on the canal less than 400 boats, whereas in 1863 the aggregate was fully 2,000 boats.

The present suspension of canalboat building is not due to any lack of capital or unwillingness to invest in new vessels, but simply to the uncertainty mentioned above as to what conditions will prevail in the future. The boatmen, if they had their way, would have locks capable of accommodating boats 125 feet in length by 24 feet beam and of 8 feet draught. This would enable each boat to carry 20,000 bushels of wheat and steamers 16,000 bushels, thus giving to an ordinary fleet of a steamer and three consorts an aggregate cargo of 76,000 bushels, as against only 30,000 bushels, the average cargo today. It is also claimed that with the deeper draught the time of transit from Buffalo to New York would be reduced from nine to eight days.

It must be admitted that the canal boatman have presented some very forceful arguments in their advocacy of improvements. According to their estimates a total expenditure of $3,000,000 would suffice to enlarge all the locks to a length of 260 feet by a breadth of 25 feet, and they argue that to them the improvement of the canal is simply a matter of self-preservation. The railroads have progressed from the use of cars with a capacity of 500 bushels to the utilization of cars with a capacity ranging from 1,000 to 2,000 bushels, but meanwhile there has been little or no development in canalboat construction. Moreover, the frequent breaks in the canal have not only necessitated heavy expenditure for insurance and storage, but have in many cases induced shippers who are handling grain consigned for export on a specified steamer to pay the heavier rail rates rather than risk the uncertainty of delivery which has characterized canal shipments.

In this connection it is interesting to note that while the aggregate of canal shipments from the opening of navigation to Sept. 1 compares very favorably with former years, the shipments of wheat have fallen off tremendously. Shipments for the current year to Sept. 1 and during the corresponding periods of the two years previous are as follows:

	1898.	1897.	1896.
Wheat, bushels.	687,273	2,784,351	8,775,760
Corn, bushels	7,074,674	6,072,220	1,986,763
Oats, bushels	3,535,323	1,001,025	8,850,419
Barley, bushels	1,772,336	1,678,250	1,046,039
Rye, bushels	245,703	1,495,015	1,156,295
Total, bushels	13,315,309	13,030,861	21,815,276

The miscellaneous shipments for this year and last show a pretty even comparison, although there is among this year's shipments 5,501,320 pounds of railroad iron, a class of freight that does not figure at all in last year's statistics. Thus far this year no flour shipments are shown. Flour shipments to Sept. 1, 1897, aggregated 15,414 barrels, and to Sept. 1, 1896, 43,287 barrels.

In connection with this discussion of the subject of canal traffic it may be noted, too, that an effort is now being made by the Produce Exchange of New York to induce the wharf and warehouse companies of the metropolis to give free delivery to canal grain; that is, place it is on the same footing as railroad grain, a circumstance that it is claimed would work no injury, inasmuch as considerable grain now stored in canal boats would be placed in the warehouses for storage.

Reports from Newport News are to the effect that the battleship Kearsarge is advanced about 68 per cent. toward completion, while the Kentucky shows 67 per cent. The slight discrepancy is attributable to the fact that the Kearsarge was placed in dry dock first to permit of certain work that could not be done while she was moored at the dock. Each of the battleships now has in position its conning tower, barbettes, docking keels and rudder, and by next month the construction of the large double turrets will have been completed.

Cable dispatches state that A. J. Drexel of Philadelphia has awarded to Watson, the Glasgow designer, an order to design a steam yacht to replace the Margarita, which he recently sold to the king of Belgium. The new yacht will be completed next year. She will not be an elaborate affair, as only 600 horse power and 17¾ knots speed are figured on.

Work was begun this week on the new Morgan line steamers, for the construction of which the Newport News Ship Building & Dry Dock Co. has the contract. One of them will be placed on the ways opposite the battleship Illinois, while the keels of the other two will be laid on the ways until recently occupied by the battleships Kearsarge and Kentucky.

Poor Passenger Service on the St. Lawrence.

Editor Marine Review:—I made a trip, recently, down the St. Lawrence to the far-famed Saguenay river and up that river to Roberval on Lake St. John. The country is most delightful—all that is claimed for it—and the passenger travel increases each year, much of the patronage coming from Americans. It is a pity, however, that the accommodations by boat after leaving Quebec are miserable—so much so that I deem it a duty to give to those who may be contemplating a trip of this kind at any time in the future an account of our unfortunate experience (there was a party of five of us from Cleveland) in returning from Chicoutimi on the Richelieu & Ontario Navigation Co.'s steamer Caroline, which is an old boat, alike to the other steamer in the service. It would certainly seem that there is a great opportunity for a new line to this beautiful country, to be operated in connection with the Toledo, Cleveland & Ogdensburg service and other lines reaching the upper part of the St. Lawrence.

At Montreal we placed ourselves entirely in the hands of the representatives of the Richelieu & Ontario company. It was our intention to go one way by rail and the other by steamboat, but under "advice" from Traffic Manager Geo. H. Browne and the Montreal ticket agent of the R. & O. Co., who were, of course, working in the interest of their vessels, we were prevailed upon to take the river route both ways. This was our great mistake. I paid $113 for transportation both ways, for meal tickets and for three rooms all the way to Chicoutimi and back to Quebec, with no question on our part as to charges so long as we were assured that we were fully provided for. We did not go into details, as the agent was to simply charge all that was required for the best accommodations on the trip. We had hardly begun the trip when at Quebec we found difficulty in securing the rooms that had been assigned to us. Here we submitted to the purser our entire collection of tickets, and he did not return to us, as the traffic manager afterward admitted, the stateroom tickets for the return trip, which he should have given us. On the way up, I became acquainted with the captain of the vessel and arranged to wire him before our return, so as to be certain of stateroom accommodations. I was to wire him at Murray Bay, but in order to be more certain of securing the rooms, the telegram was forwarded to Quebec, farther up the river, and was received by the captain at that point and turned over to the purser. But we had made the mistake of paying for round-trip accommodations, and the purser, the same official who had arbitrarily taken from us our room tickets for the return trip, was evidently operating his part of the vessel with a view to taking on passengers everywhere and getting all he could out of them without regard for those who had paid for round-trip accommodations with the expectation of being fairly treated. When the boat arrived at Chicoutimi, the head of navigation on the Saguenay, we were hurried out of the hotel at 4 o'clock in the morning, to find that there were no rooms for us on the return trip. The captain, who was obliging in many ways as a result of the acquaintance we had made with him, offered to give us the use of his room during the day, but we had a night on the boat before us, and we soon found also that rooms were being provided for passengers who had not even taken the precaution of telegraphing for them. It was evident that we were victims of ways that are strange with pursers, and that the passenger who was to have what was due him would be called upon to fight his way through. I told Traffic Manager Brown later that if I had known it was necessary to "fix" the purser, I would have done so willingly, as one of our party was sick and was compelled to creep into a bunk in what I think was called the "ladies' steerage." I pitied several ladies who were compelled to sleep there. Many sat up all night. The timid passengers and the ladies, who had no one to force matters for them, fared badly. At every meal there was a jam at the dining-room and many of the passengers went without rather than stand a half-hour or more in line and be subjected to other indignities. Arriving down at the mouth of the Saguenay, I concluded to leave the boat, as at a place called Riviere Du Loup it was possible to take the Grand Trunk Ry. My opinion of the service and the conduct of the purser was given in no uncertain terms. The purser then made a great display of preparations to care for our party and provided a couple of rooms, but we were compelled to pay for them, and we were therefore $10.25 out on the trip in the matter of rooms. The same purser who had taken our room tickets for the return trip from us now compelled us to pay a second time for the rooms.

I have gone into detail in order to give the facts in this matter, on account of the tendency among people from this part of the country to spend a holiday down the St. Lawrence, and with the hope that something may be done towards improving the steamboat service.

Cleveland, Sept. 3, 1898. THOMAS WILSON.

A letter, supposed to be in a measure explanatory of the failure of the firm of Petersen & Tate of Newcastle, Eng., to fulfill its contract with the Dominion government for the establishment of a fast mail line between Canada and Great Britain, has just been written by Mr. William Petersen of the firm in question. After declaring that the scheme was both honest and commercially sound, he states that the subsidy offered was more than sufficient, and adds that "if anything more is paid in the future, the Canadian people will be robbed in order to feed the shareholders' pockets." He firmly defends the "turret" type of steamer, which was to have been utilized for the new service, and gives it as his opinion that should the ordinary type of vessels be finally adopted, it would prove a serious bar to any diversion of traffic from the United States. Finally, Mr. Petersen offers to allow the Canadian government the use of all plans and specifications, but expresses the hope that the government will refund the deposit made by his firm.

At present eighty-five schooners of over 1,000 tons gross register are owned on the Atlantic coast, while only one is owned on the Pacific coast. It is significant that since June 30, 1897, only one schooner of over 1,000 tons has been built in this country. The first schooner of this rating built in the United States was constructed in 1882 at Bath, Me. The lake type of barge or towing vessel is not designated as a schooner in government records.

A Record of Decline in American Shipping.

Statements of a kind decidedly humiliating to the American people are coming from the treasury department these days, in the reports that are attending a more general discussion of the shipping question. Few persons even among those closely identified with shipping interests, have had a full conception of the extent of deterioration in our mercantile marine. A decrease in the percentage of total shipments by sea carried in American vessels from 66.9 per cent. in 1859 to 11 per cent. in 1897 certainly should be sufficient to arouse congress to a realization of the immediate necessity of some action looking to the restoration of this interest. In this connection the bureau of statistics, treasury department, has compiled a highly interesting table showing the total value of the imports and exports of the United States and the value of the portion carried in American bottoms. The table follows:

Fiscal Year.	Total value of imports and exports of United States both by land and sea.	Percentage of shipments by sea carried in American ships.	Total value of imports and exports carried in American ships.
1859	$ 695,557,592	66.9	$465,741,381
1860	762,288,550	66.5	507,247,757
1861	584,995,066	65.2	381,516,788
1862	435,710,714	50.0	217,695,418
1863	584,928,502	41.4	241,872,471
1864	669,855,034	27.5	184,061,486
1865	604,412,996	27.7	167,402,872
1866	1,010,938,552	32.2	325,711,861
1867	879,165,307	33.9	297,834,904
1868	848,527,647	35.1	297,981,573
1869	876,448,784	33.2	289,956,772
1870	991,896,889	35.6	352,069,401
1871	1,132,472,258	31.9	353,664,172
1872	1,212,328,233	29.2	345,331,101
1873	1,340,899,221	26.4	346,306,592
1874	1,312,680,640	27.2	350,451,994
1875	1,219,434,544	26.2	314,257,792
1876	1,142,904,312	27.7	311,076,171
1877	1,194,045,627	26.9	316,660,281
1878	1,210,519,399	26.3	313,050,906
1879	1,202,708,609	23.0	272,015,692
1880	1,503,593,404	17.4	258,346,577
1881	1,545,041,974	16.5	250,586,470
1882	1,475,181,831	15.8	227,229,745
1883	1,547,020,316	16.0	240,420,500
1884	1,408,211,302	17.2	233,699,035
1885	1,319,717,084	15.3	194,865,743
1886	1,314,960,966	15.5	197,349,503
1887	1,408,502,979	14.3	194,356,746
1888	1,419,911,721	14.0	190,857,473
1889	1,487,533,027	14.3	203,805,108
1890	1,647,139,093	12.9	202,451,086
1891	1,729,397,006	12.5	206,459,725
1892	1,857,680,610	12.3	220,173,735
1893	1,714,066,116	12.2	197,765,507
1894	1,547,135,194	13.3	195,268,216
1895	1,539,508,130	11.7	170,507,196
1896	1,662,331,612	12.0	187,691,887
1897	1,815,723,868	11.0	189,075,277

Around the Lakes.

An extended obituary notice of the late John F. Pankhurst, which conveys a very clear estimate of the character of the man, appears in the current number of the Journal of the American Society of Naval Engineers. The tribute is exceedingly well written.

Lemuel Ellsworth, at one time a well-known ship builder, died at the residence of his daughter in Milwaukee, last week. Mr. Ellsworth was a member of the firm of Ellsworth & Davidson and built the Nelson, Tanner, Breed, Waucoma and a number of other schooners.

Capt. John McKeighan, who was injured by being struck by a falling lump of coal while superintending the loading, at Fairport, of his schooner, the J. J. Barlum, is rapidly convalescing. Capt. McKeighan was knocked off the dock, and, being unconscious, would undoubtedly have been drowned had it not been for the prompt action of Frank Rankins, a sailor whom he had shipped only the day before. Capt. McKeighan has been sailing since 1854, and this is the first time he has had to miss a trip of his boat.

The Waukegan city council has let the contract for excavating the new ship-canal in the harbor to Carkin, Stickney & Cram of Detroit, at a price of 12 cents a cubic foot. The channel is to be 66 feet wide in the outer harbor and 120 feet wide in front of the city dock. It will approach the new belt line slip now nearing completion, which will be 16 feet deep. The work is to be done this fall and the full depth must be attained by May 1 next.

Commander C. O. Allibone, light-house inspector of the ninth district, states that a vacancy exists in the position of second mate in the light-house service, in that district, which includes Lake Michigan, Green bay and tributary waters lying west of a line drawn across the Straits of Mackinac at Mackinac point, Mich. Persons who wish to apply for the position should obtain the proper blank forms of application from his office at Chicago, either in person or by mail, and after filling them out return them. Those who have already filed applications need not do so again. Applicants need not appear in person. After thirty days all applications received will be examined, the applicants graded according to merit, and a list of those eligible for appointment sent to the light-house board.

New Warehouse on Chicago Lake Front.

Chicago, Ill., Sept. 7.—Vessel men and shippers from all lake points will be interested to learn that the Western Union Cold Storage Co. of this city is erecting large general and cold storage warehouses on the north half of pier No. 2, just south of the mouth of the Chicago river, and in such a position that vessels will not require the use of tugs to make their landings there. It is expected that these warehouses, handling large quantities of produce, fish, game, etc., under improved methods, will mark the beginning of a lake-front business in Chicago that will eventually prove of great importance to the vessel interests. The cold storage warehouse stands 300 feet from the western end of the slip, is 206 by 136 feet and six stories high. It is built of tile with brick bands and cornice, and, although not yet entirely finished, is one of the most prominent objects at the mouth of the river. Four elevators at the center of the building (two on each side) will be used as the main entrance for freight, vessels unloading direct onto the north elevators, and the south side being similarly arranged for the reception of freight from cars. This arrangement gives but one handling of the freight, no matter what floor it is to be stored on. East of the cold storage house, separated from it by 10 feet,

is the power house and refrigerating plant, of brick, two stories, 100 by 76 feet; 201 feet from this is the general warehouse, four stories in height and extending to within 70 feet from the eastern end of the pier. It is probable that the 200 feet between the warehouse and power house will also be built over soon, so that the capacity will be doubled.

The chief importance of this to lake vessel men, aside from the fact that some of them will soon have freight consigned to this company, is the fact that it is a step towards the proper use of the docks now on the lake front, and if this enterprise is encouraged as it should be, it will not be long before others will see the advantage obtained and will lease the remaining frontage on the other slips for general warehouse and shipping purposes. When this is accomplished the long stretch of lake front north of the river will be rapidly docked and utilized to the manifest advantage of all lake interests and a great saving of money and time that now goes into towing. For this and other reasons the location of this warehouse at the river's mouth is much more important than it seems. The first play is made, and there is much curiosity among the thoughtful portion of Chicago's business men to see what the response will be.

Contracts for the New Battleships.

There seems to be no doubt that in the distribution of contracts for the construction of the new battleships, Ohio, Maine and Missouri, one each will go to the Newport News Ship Building & Dry Dock Co., William Cramp & Sons Ship & Engine Building Co. and the Union Iron Works, San Francisco. The bid of the Newport News company for an 18-knot ship was the lowest, but they did not offer to duplicate it. The Cramps offered to build two, but inasmuch as the bid of the Union Iron Works is within the stipulations of that part of the naval act which provides that one ship must be built on the Pacific coast, unless the price bid is more than 4 per cent. greater than the lowest bid submitted by Atlantic bidders, the Philadelphia firm will secure only one vessel. The Cramps will build a practical duplicate of the battleship which they are building for Russia. The 18-knot vessel proposed by the Newport News company is based upon the department plan, and simply contemplates lengthening the hull some 15 or 20 feet, giving 12,500 tons displacement. The Newport News company's plans contemplate the use of Scotch boilers, while the Cramp plans provide for water tube boilers of the Niclausse pattern. A lively discussion as to their respective merits is likely to be engendered. Although in one sense something of an ovation, the water tube boiler has been in use in the United States navy since the construction of the monitor Monterey in 1890. The Union Iron Works' plans for securing a battleship with a speed of 18 knots are to lengthen the hulls and put in additional boilers of the water tube type.

Fire at the Bertram Engine Works.

A disastrous fire almost totally destroyed the ship building plant of the Bertram Engine Works Co. at Toronto at an early hour last Friday morning. The loss includes the large carpenter shop with an exceptionally heavy stock of woodwork, considerable machinery, the docks of the company, one of which was entirely consumed and the other badly damaged, and a steam barge building for the Prescott Elevator Co. and which was lying at one of the wharves. The new steamer Toronto, building for the Richelieu & Ontario Navigation Co. and which is within a month of completion, had a narrow escape from destruction by the flames. The vessel, which is valued at $250,000, was, however, simply scorched about the stern and it is believed that $200 will cover the damage. The principal loss is in the destruction of valuable steel cutting and shaping machinery. This was estimated to be worth fully $40,000. The damage to the docks was $5,000, and the total loss will aggregate from $60,000 to $70,000, fully covered by insurance.

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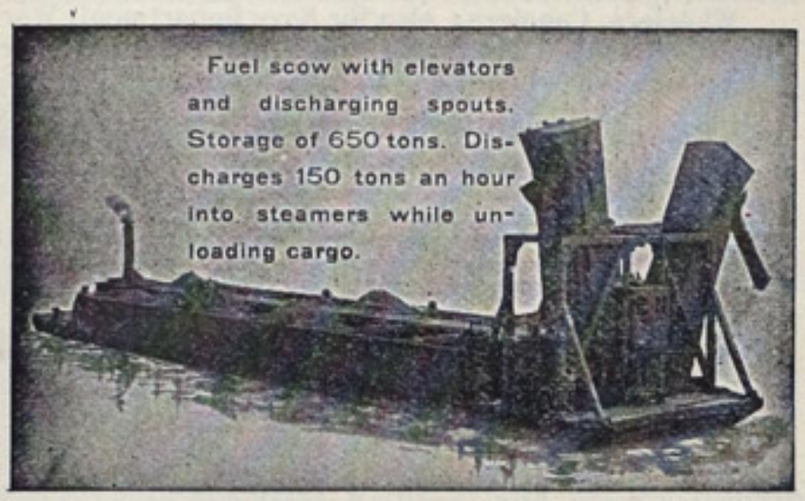
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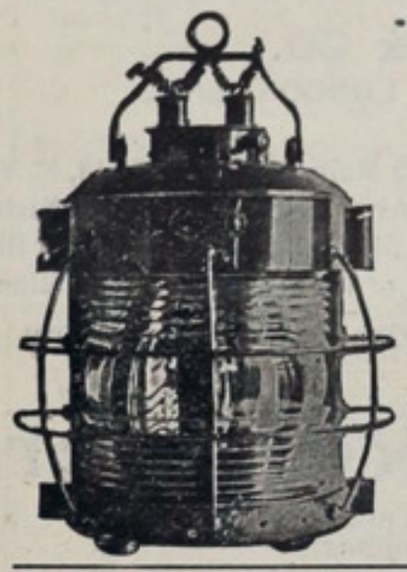

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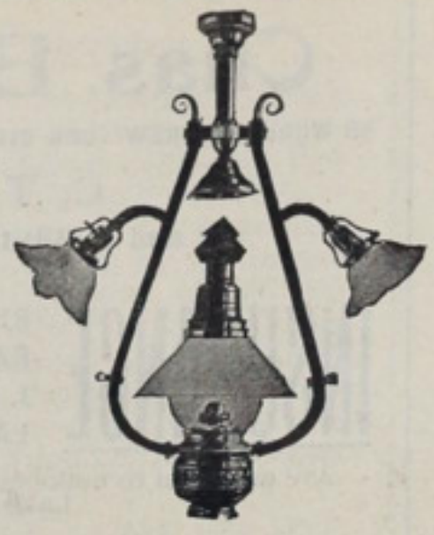

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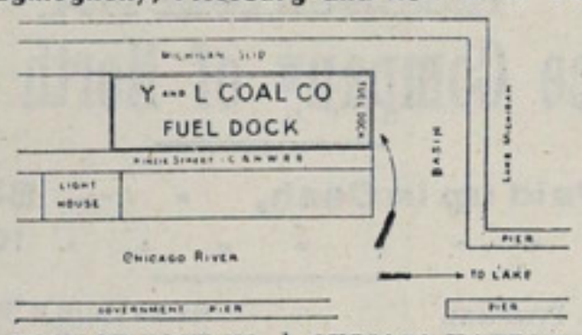

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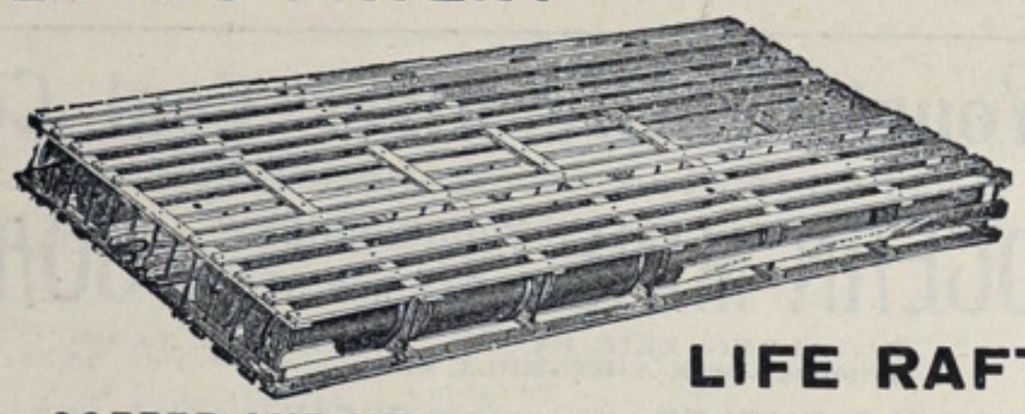

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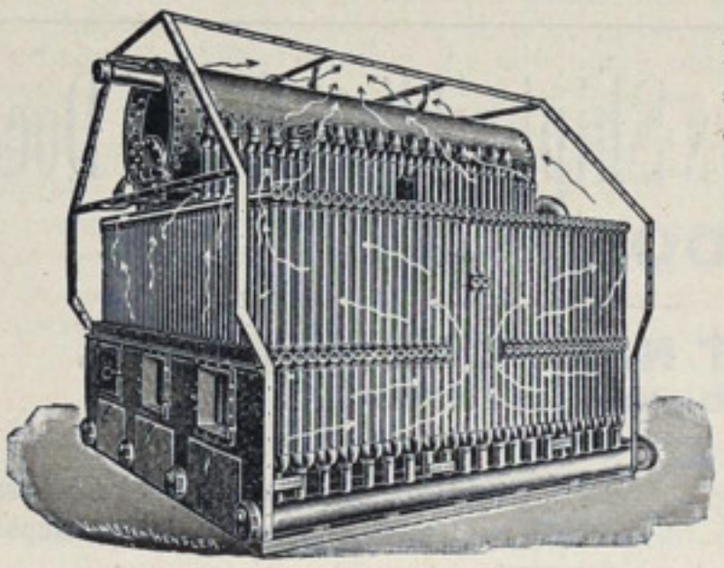

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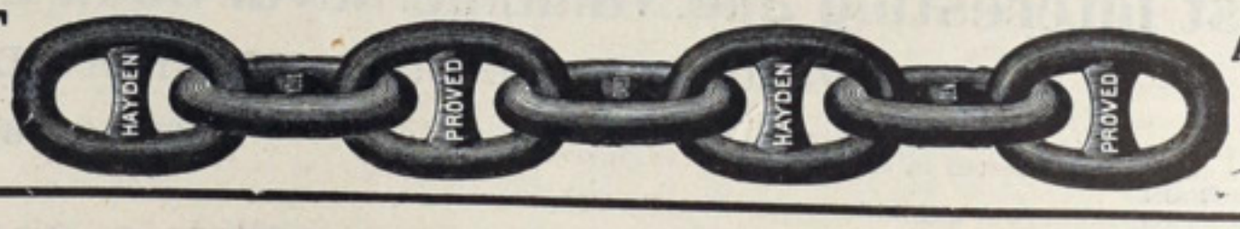

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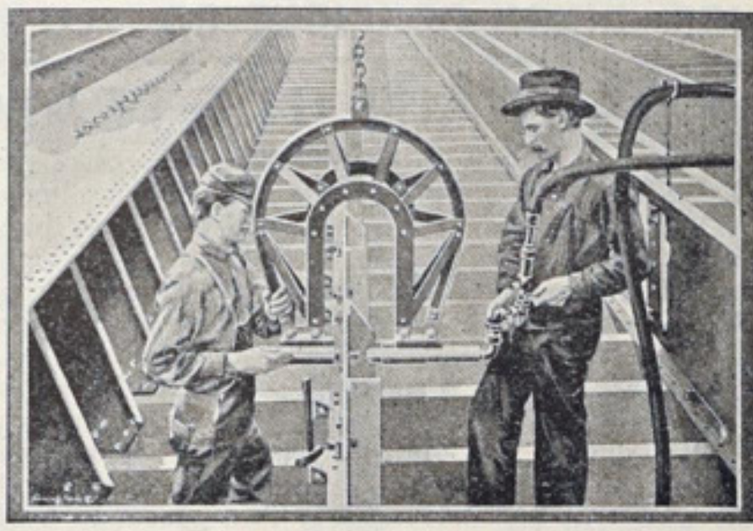

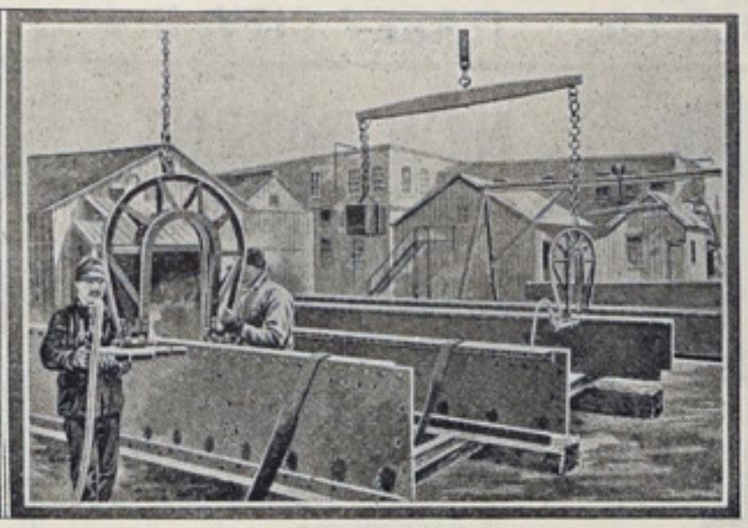

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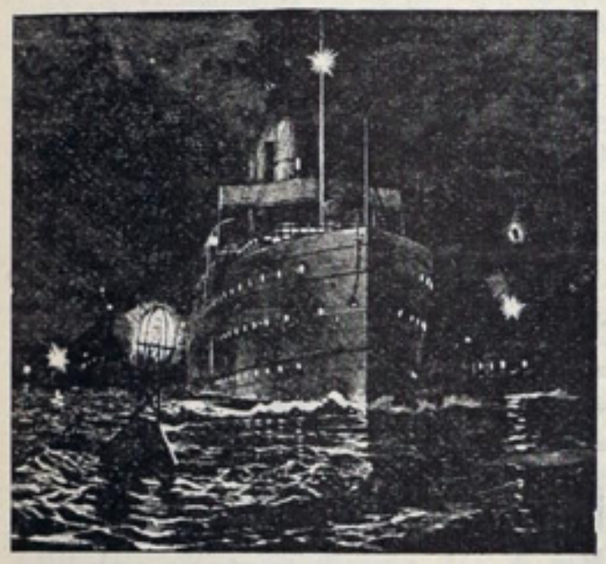

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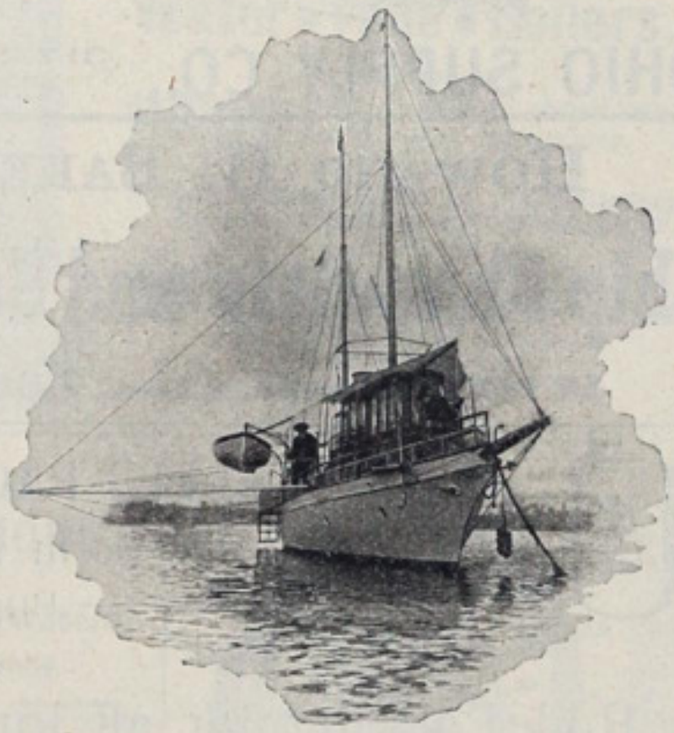

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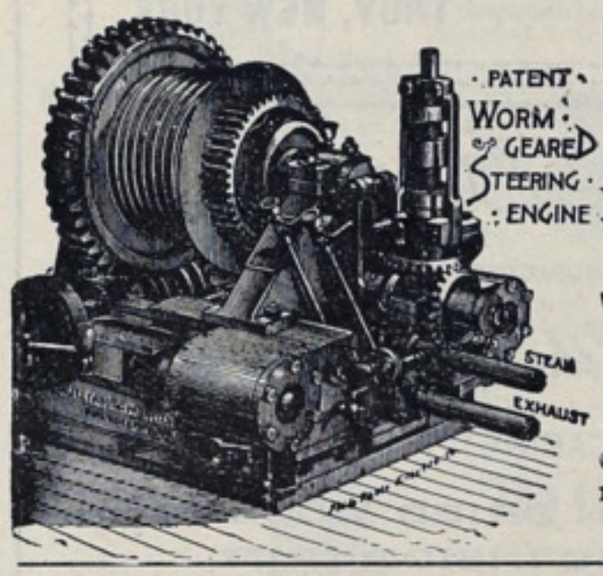

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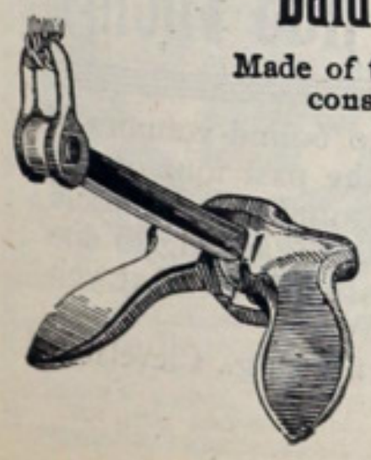

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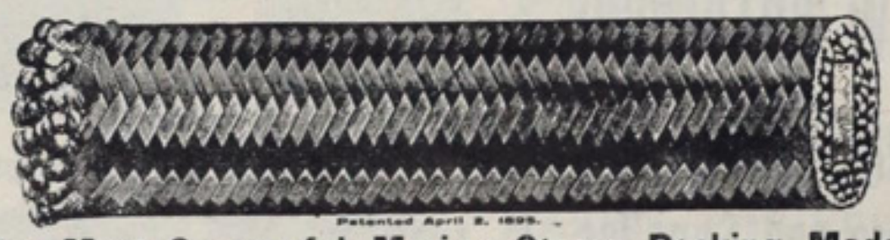

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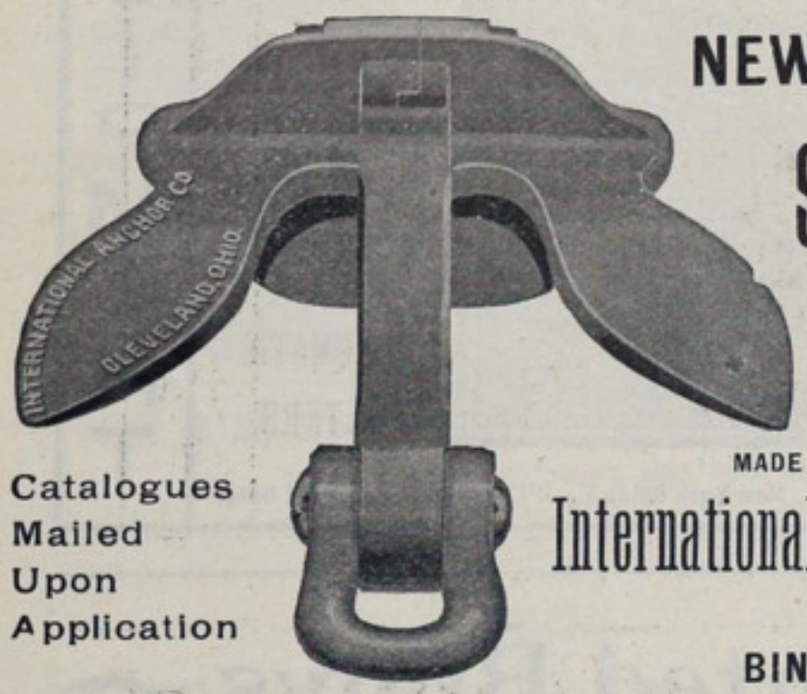

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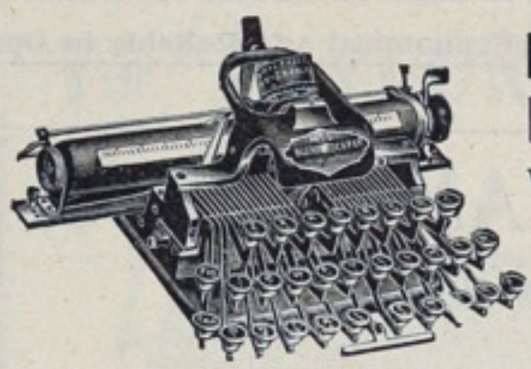

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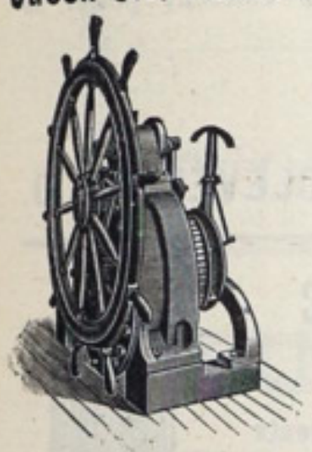

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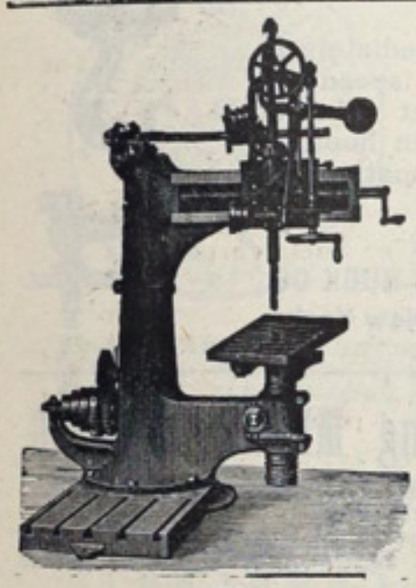

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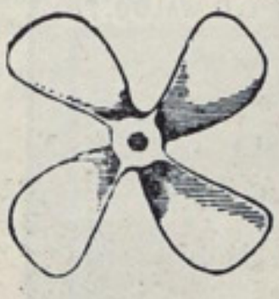

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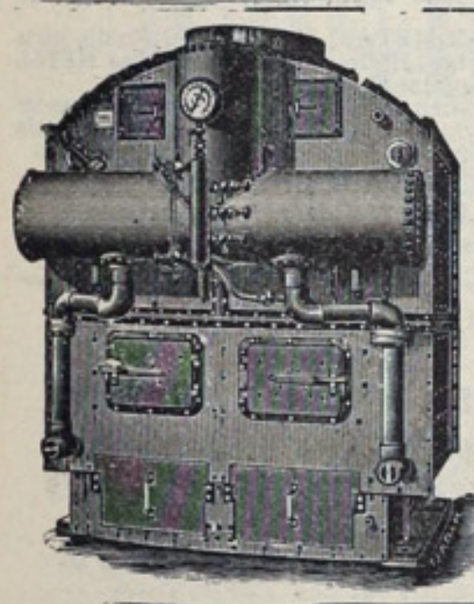

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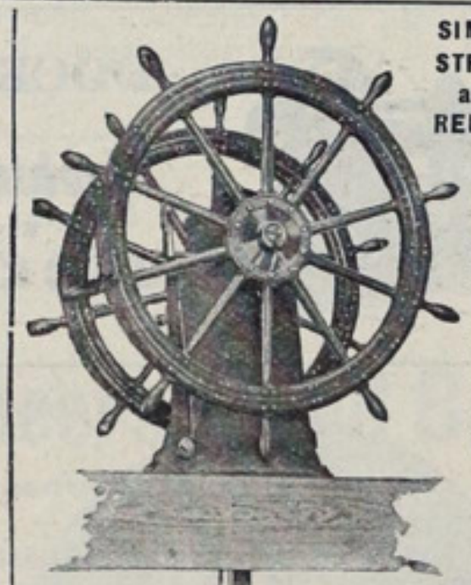

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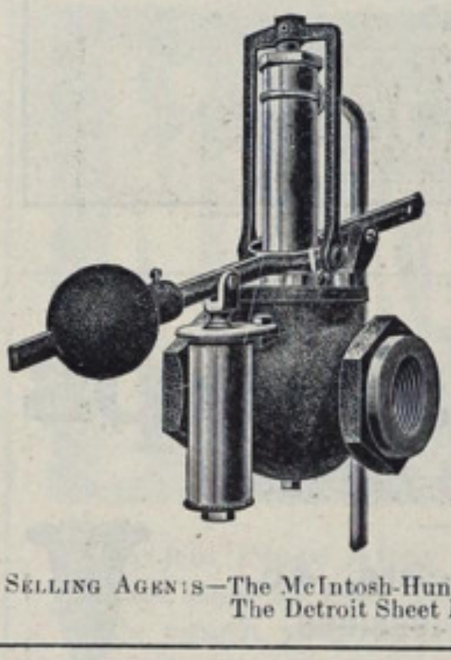

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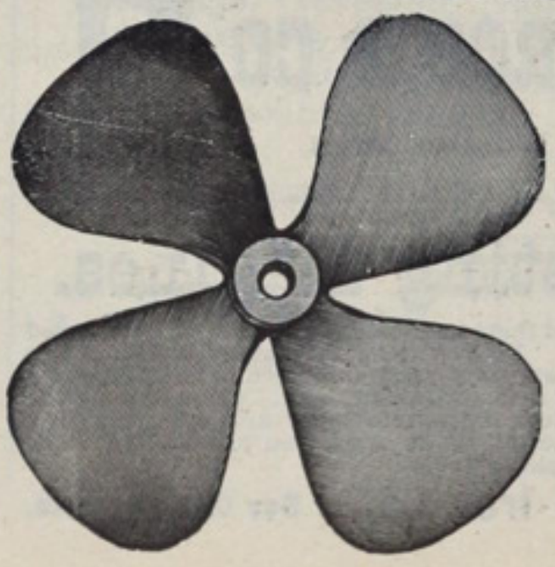

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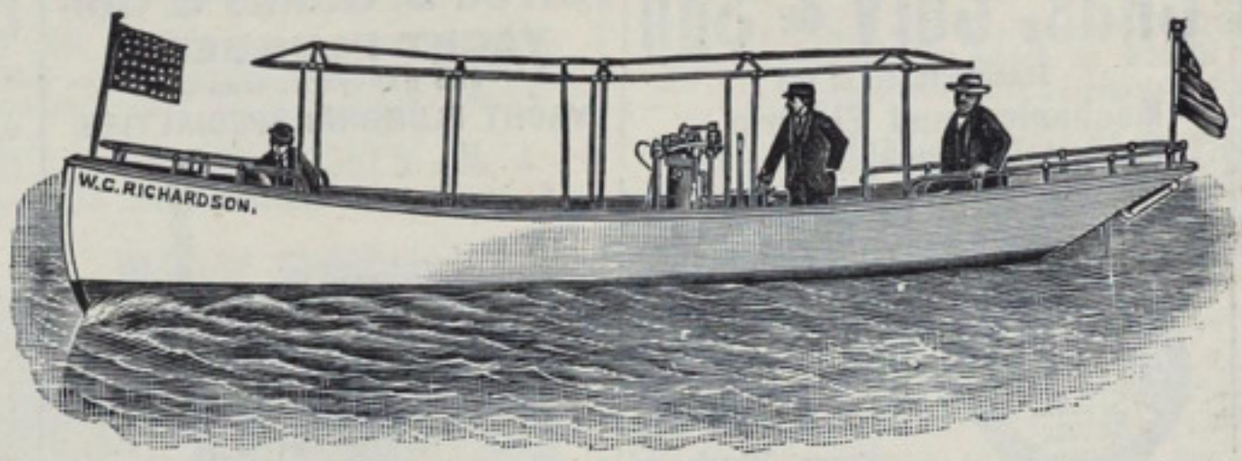

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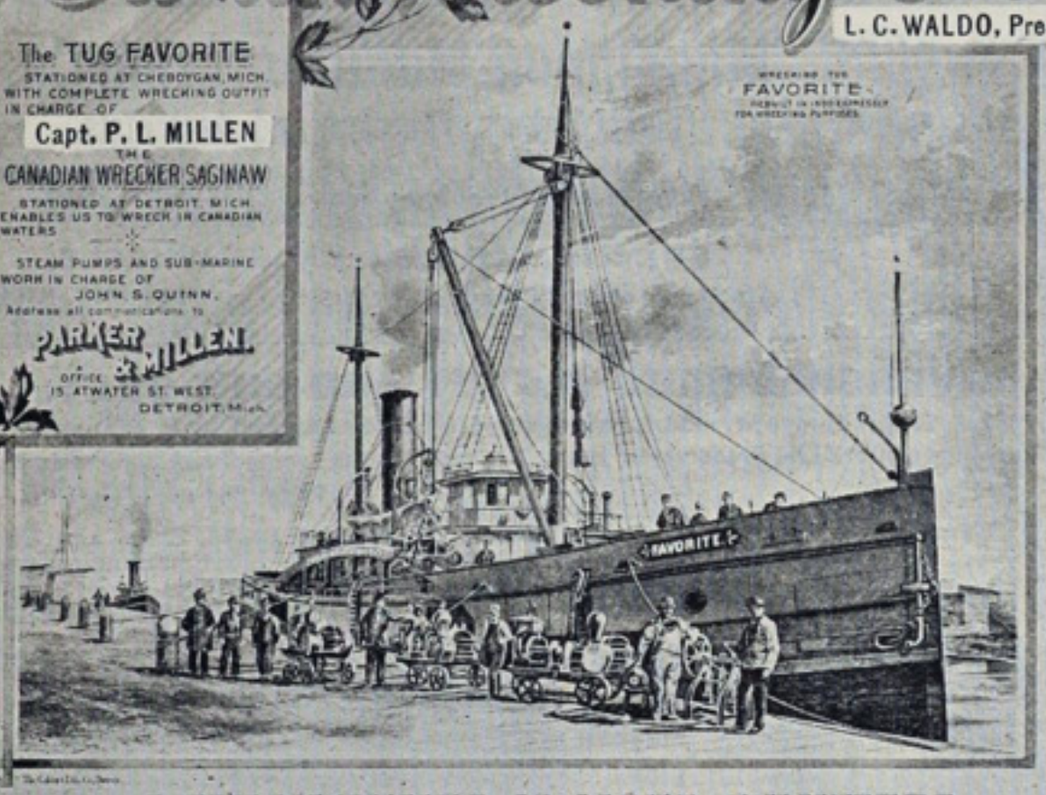

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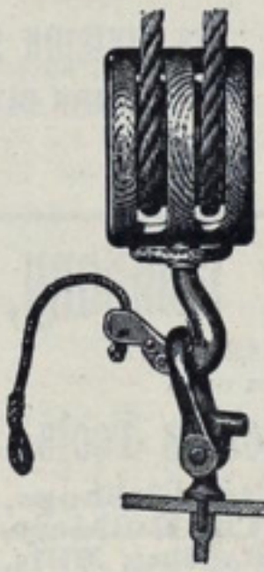

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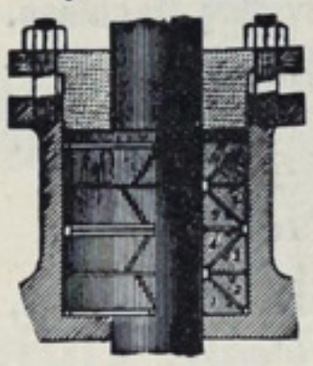

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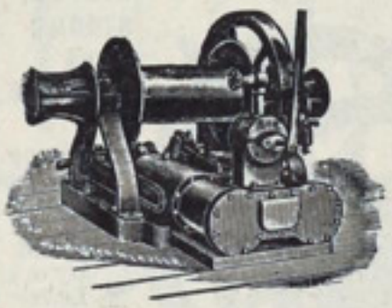

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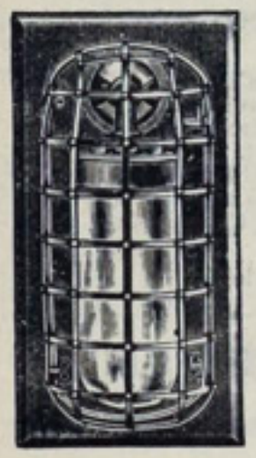

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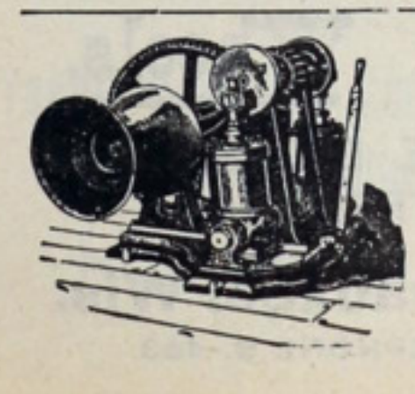

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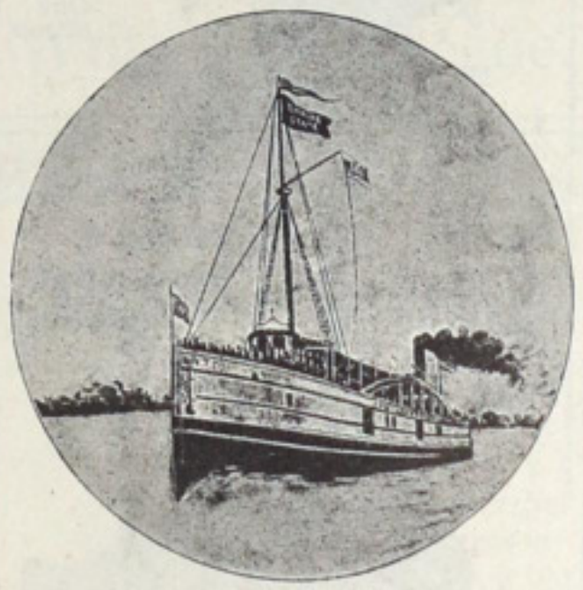

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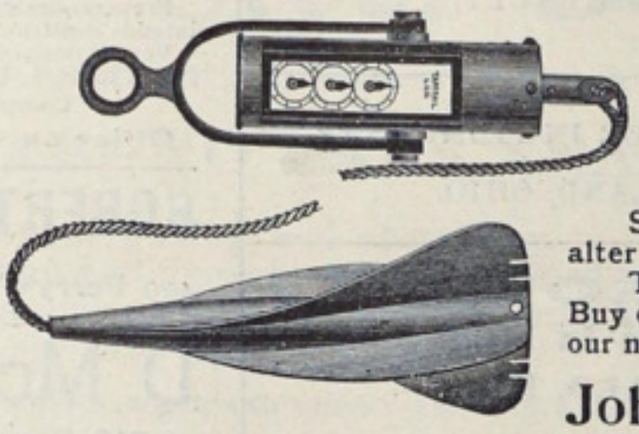

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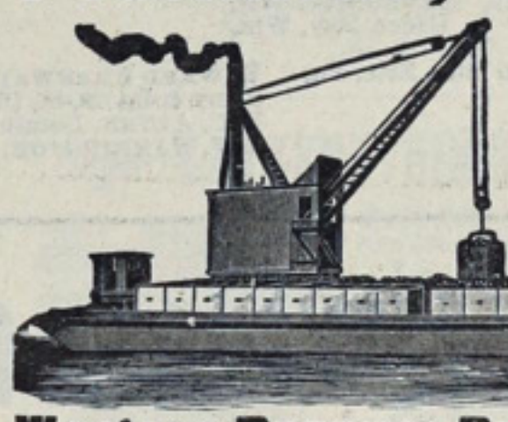

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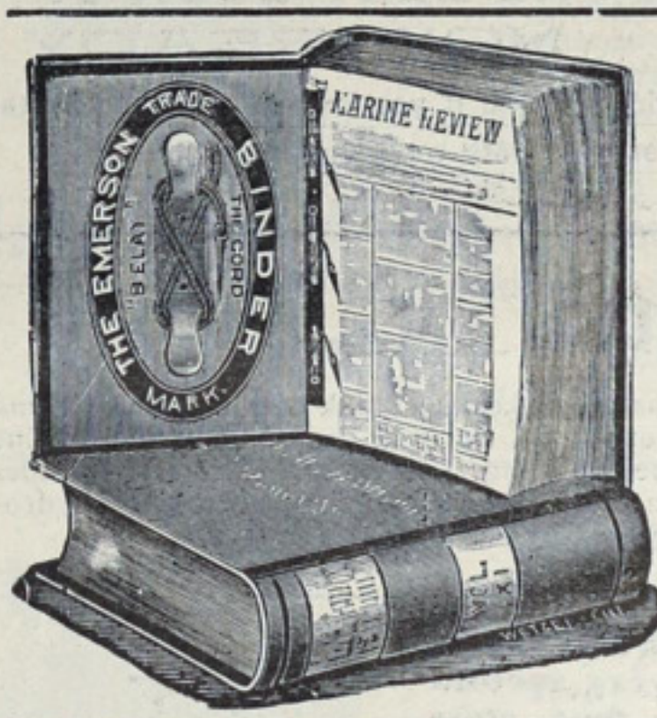

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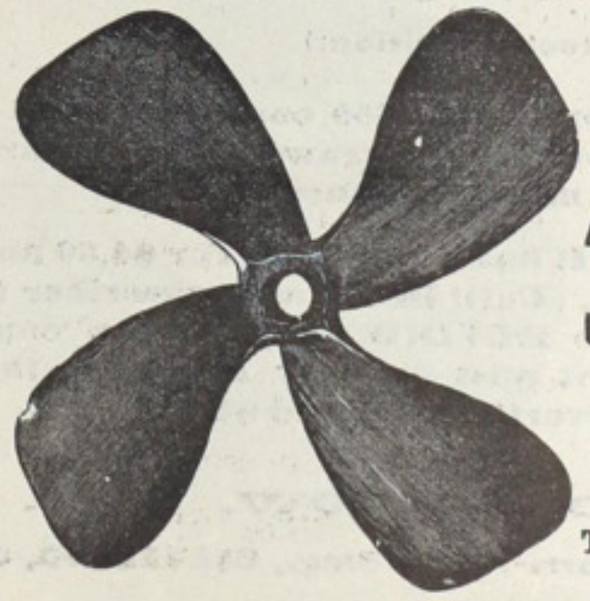

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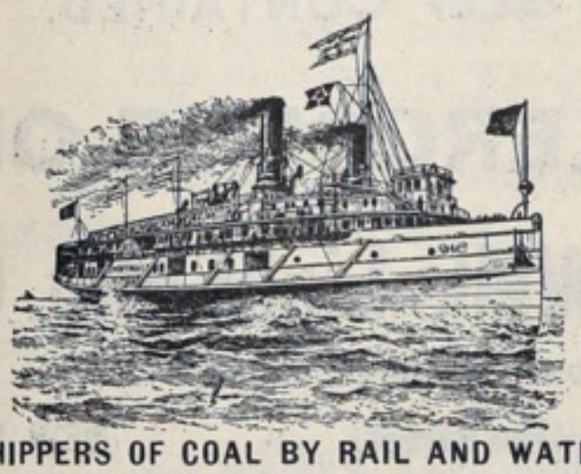

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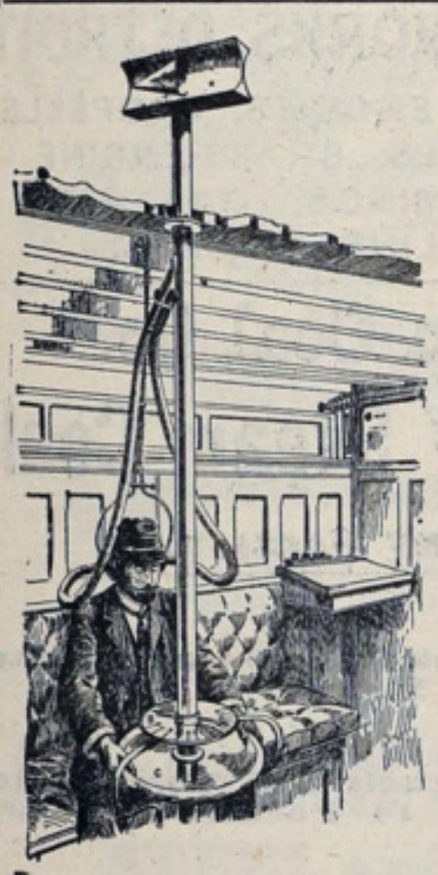

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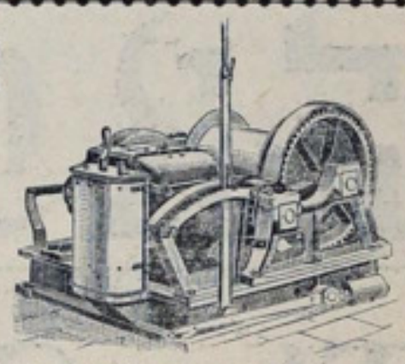

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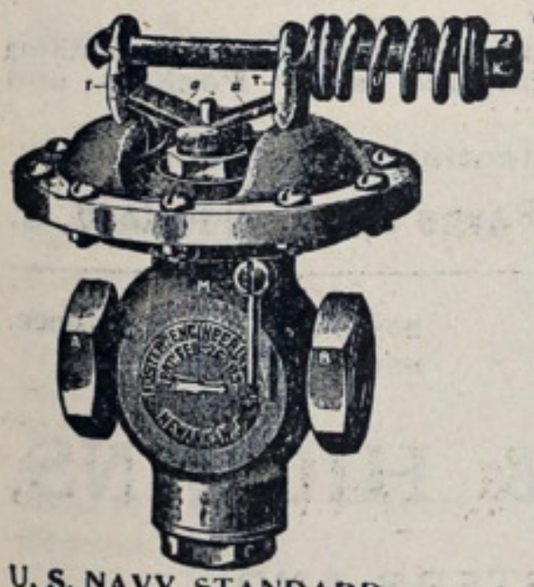

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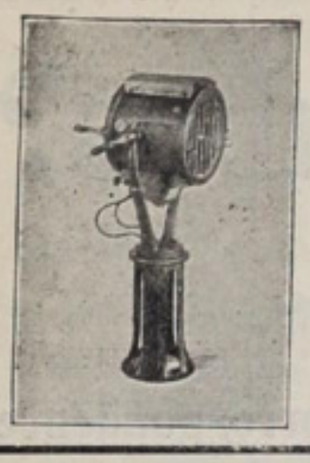

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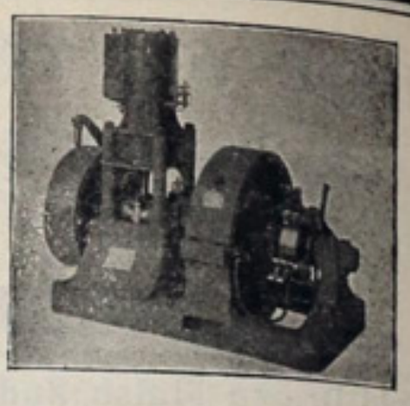

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June 10, 1898.

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1. Please forward to the Commanding Officer, U. S. S. 'MARIETTA', Key West, Fla., 8 fire bricks, 4 rights and 4 lefts, No. R, 3440, Babcock & Wilcox boilers, to replace broken bricks between furnace doors.

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Respectfully,

(Sig.) EDWIN STEWART, Paymaster General, U. S. N.

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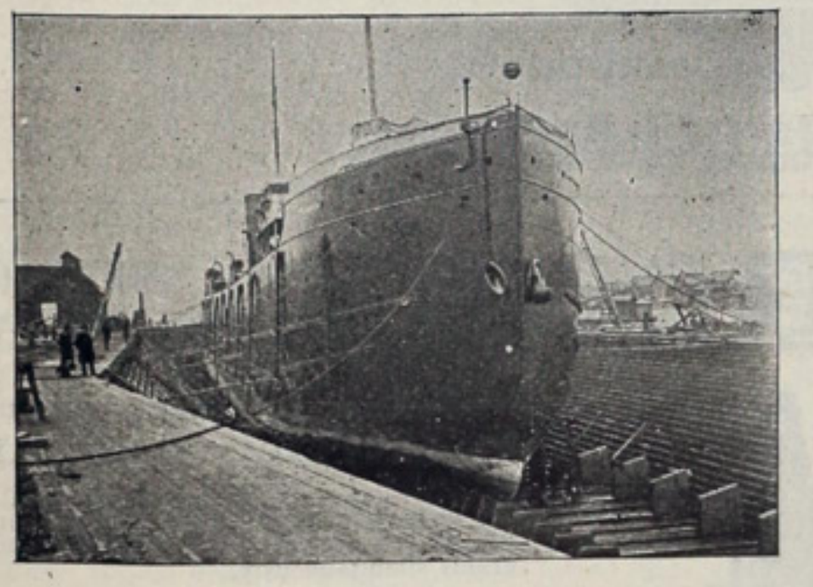

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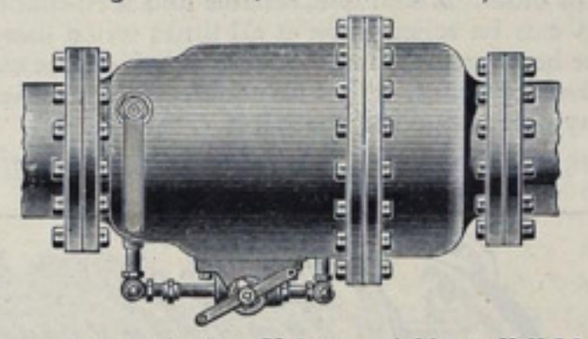

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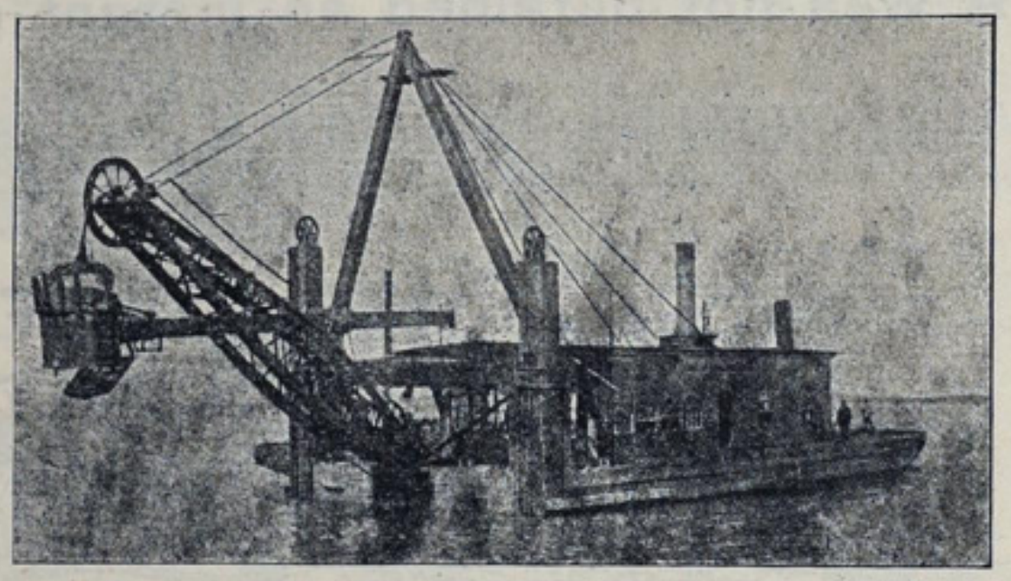

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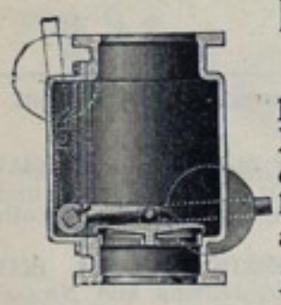

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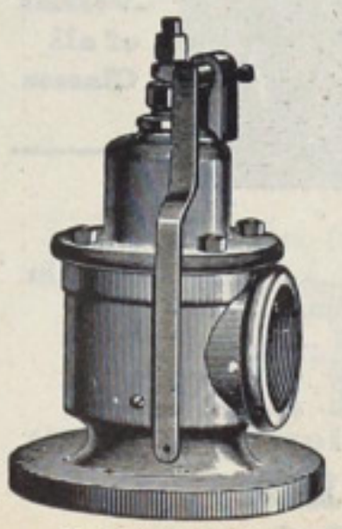

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